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MARCH 1979 Number 415 -- Part I

PAA STACKS

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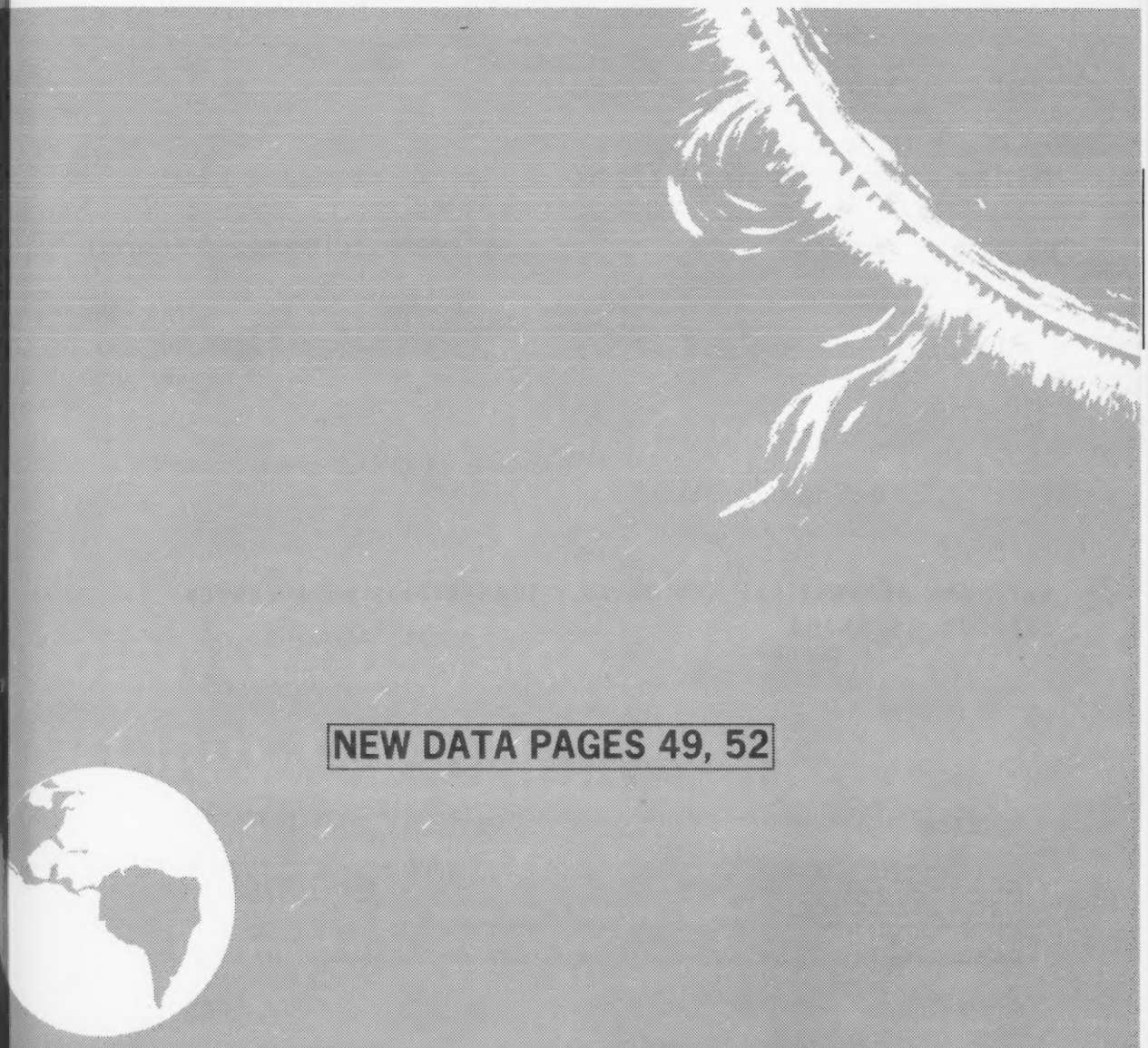
Solar-Geophysical Data prompt reports

Data for February 1979 -- January 1979
Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



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Solar - Geophysical Data

NO. 415 MARCH 1979

Part I (Prompt Reports)

DATA FOR
FEBRUARY 1979
JANUARY 1979

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SOLAR-GEOPHYSICAL DATA

No. 415

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Solar-Terrestrial Activity 1977

DETAILED COVERAGE FOR 1978 AND 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

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A.3a	Mt. Wilson Magnetograms	403A 46	404A 40	405A 48	406A 54	407A 46	408A 50	409A 38	410A 48	411A 46	412A 40	413A 48	414A 48	415A 52	
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A.7h	Coronal Line Emission (Sac Peak)	403A 46	404A 40	405A 48	406A 54	407A 46	408A 50	409A 38	410A 48	411A 46	412A 40	413A 48	414A 48	415A 52	
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A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	402A 9	403A 9	404A 9	405A 9	406A 9	407A 9	408A 9	409A 9	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11
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A.11i	Solar X-ray (Columbia U.)									----	----	----	----	----	
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A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	402A 31	----	----	----	----	----	408A 43	----	----	----	412A 29	----	414A 37	----
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A.13a	Solar Wind (Pioneers 6 & 7)	402A 30	----	----	----	----	----	----	----	----	----	----	----	414A 36	----
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A.17c	Inferred IP Magnetic Field	402A 32	403A 38	404A 32	406A 38	406A 38	407A 38	408A 40	409A 30	410A 40	411A 38	412A 32	413A 40	415A 42	415A 42
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A.18	Interplanetary Electric Field (Pioneer 9)	402A 31	----	----	----	----	----	----	----	----	----	412A 29	----	414A 37	----
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C.1ba	Optical Observations Flares (Standardized Data)	407B 8	408B 8	409B 8	410B 8	411B 8	412B 8	413B 8	414B 8	415B 6					
C.1d	Flare Patrol Observations	402A 15	403A 19	404A 16	405A 16	406A 19	407A 19	408A 18	409A 16	410A 22	411A 19	412A 17	413A 20	414A 23	415A 24
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C.4d	Solar Radio Spectral Obs. (Culgoora)	404B 56	405B 40	406B 64	407B 59	407A139	408A138	409A115	410A139	412B 60	412A134	413A134	414A142	415A129	
C.4e	Solar Radio Spectral Obs. (Weissenau)	403A132	404A122	405A138	406A144	407A139	408A138	409A115	410A139	411A135	412A134	413A134	414A142	415A129	
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C.4h	Solar Radio Spectral Obs. (Dwingeloo)	403A132	404A122	405A138	----	----	----	----	----	411A135		413A134	414A142	415A129	
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C.5e	Solar X-ray (SMS/GOES)	402A 26	403A 29	404A 26	----	406A 32	407A 29	408A 33	409A 27	410A 34	411A 31	412A 27	413A 32	----	----
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F.1b	Cosmic Ray Neutron Counts (Climax)	406B 73	406B 73	406B 73	406A161	411A 69	411A 69	411A 69			415B 72	415B 72	415B 72		
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F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)														
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F.1j	Cosmic Ray Neutron Counts (Tokyo)	403A138	404A138	405A150	406A161	407A155	408A155	409A134	410A152	411A150	412A154	413A149		415A154	
F.1k	Cosmic Ray Neutron Counts (Kula)														
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Notes:

"410A 49" listed under 1978 Aug means that the sunspot drawings for August 1978 were contained in *Solar-Geophysical Data* Number 410 - Part I, beginning on page 49.

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---- = no data available.
blank = data not yet received.

SGD 415 Part I (Prompt)

FEBRUARY 1979 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

FEBRUARY 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

PRESTO BOULDER 01/1743Z SOFLARE M2/2B S20E55 01/0600Z DURATION 32 MINUTES
TOYOKAWA 05/0750Z TENFLARE 190 FLUX UNITS 05/0638Z DURATION 07 MINUTES
TOYOKAWA 08/0224Z TENFLARE 140 FLUX UNITS 08/0201Z IN PROGRESS 25 PERCENT EAST
BOULDER 12/1946Z SOFLARE M2/1B S35E16 12/1946Z DURATION 22 MINUTES
TENFLARE 250 FLUX UNITS 12/1950Z DURATION 5 MINUTES
BOULDER 16/0310Z SOFLARE X2/2B N15E48 16/0141Z DURATION 40 MINUTES
TENFLARE 780 FLUX UNITS 16/2234Z DURATION 5 MINUTES
TENFLARE 48000 FLUX UNITS 16/0143Z DURATION 30 MINUTES
TOKYO REPORTED 1250 FLUX UNITS AT 16/0141Z
MANILA REPORTED 80000 FLUX UNITS AT 16/0144Z
PALEMUA REPORTED 480000 FLUX UNITS AT 16/0141Z
BOULDER 17/0200Z TENFLARE 270 FLUX UNITS 17/0019Z DURATION 5 MINUTES
BOULDER 17/0412Z TENFLARE 500 FLUX UNITS 17/0232Z DURATION 5 MINUTES
BOULDER 17/2245Z PROTON EVENT BEGAN AT 17/1930Z 20 PROTONS/CM²/SEC/STER AT GREATER THAN 10 MEV AT 17/2130Z
MAX AT 17/2130Z END 17/2310Z
BOULDER 18/1525Z SOFLARE X1/SB N16E13 18/0639Z DURATION 17 MINUTES
BOULDER 18/1800Z SOFLARE X1/2B N17W13 18/1633Z DURATION 19 MINUTES
TENFLARE 690 FLUX UNITS 18/1632Z DURATION 5 MINUTES
TOYOKAWA 20/2320Z TENFLARE 200 FLUX UNITS 20/2216Z DURATION 5 MINUTES
BOULDER 21/1450Z SOFLARE X1/1B N17W28 21/1413Z DURATION 32 MINUTES
BOULDER 22/1430Z SOFLARE M9/1B N17W35 22/0507Z DURATION 18 MINUTES
TENFLARE 240 FLUX UNITS 22/0506Z DURATION 22 MINUTES

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
032	01	31	197	200	008	N22W76	0	0	0		01	N22W76	Q	SOLQUIET MAGNIL
						S12W76	0	0	0			S12W76	Q	
						S25W56	5	0	0			S25W56	Q	
						S23W46	0	0	0			S23W46	Q	
						N17E28	0	0	0			N17E28	Q	
						N06E53	2	0	0			N06E53	Q	
						N20E37	0	0	0			N20E37	Q	
						S14E54	1	0	0			S14E54	Q	
						S38E34	0	0	0			S38E34	Q	
						N13E42	0	0	0			N13E42	Q	
						N18W15	0	0	0			N18W15	Q	
						S21E68	0	0	0			S21E68	Q	
033	02	01	128	190	008	S26W71	0	0	0	PRESTO BOULDER	02	S26W71	Q	SOLQUIET MAGQUIET
						S24W58	1	0	0	01/1743Z SOFLARE		S24W58	Q	
						N15E13	0	0	0	M2/2B S20E55		N15E13	Q	
						N08E22	6	0	0	01/0600Z DURATION		N08E22	Q	
						N19E21	1	0	0	32 MINUTES		N19E21	Q	
						S13E41	4	1	0			S13E41	E	
						N14E27	1	0	0			N14E27	Q	
						S18E56	0	0	0			S18E56	Q	
034	03	02	190	190	005	S25W85	0	0	0		03	S25W85	Q	SOLQUIET MAGQUIET
						S23W70	0	0	0			S23W70	Q	
						N16W01	0	0	0			N16W01	Q	
						N07E08	1	0	0			N07E08	CA	
						N20E06	0	0	0			N20E06	Q	
						S13E28	0	0	0			S13E28	CA	
						N13E11	0	0	0			N13E11	Q	
						S18E43	0	0	0			S18E43	Q	
						N14E75	0	0	0			N14E75	Q	
						N37E76	0	0	0			N37E76	Q	
						S21E80	0	0	0			S21E80	Q	
035	04	03	200	196	006	S23W84	0	0	0		04	S23W84	Q	SOLQUIET MAGQUIET
						N07W07	2	0	0			N07W07	A	
						N20W07	0	0	0			N20W07	Q	
						S14E14	2	0	0			S14E14	A	
						N13E02	0	0	0			N13E02	Q	
						S20E30	1	0	0			S20E30	Q	
						N13E63	1	0	0			N13E63	CA	
						N35E52	1	0	0			N35E52	Q	
						S22E65	0	0	0			S22E65	Q	
						N15E73	1	0	0			N15E73	CE	
036	05	04	227	193	016	N16W24	1	0	0		05	N16W24	Q	SOLQUIET MAGQUIET
						N07W19	3	0	0			N07W19	E	
						N20W21	3	0	0			N20W21	Q	
						S13E01	4	0	0			S13E01	CA	
						N14W08	1	0	0			N14W08	Q	
						S20E16	0	0	0			S20E16	Q	
						N15E43	0	0	0			N15E43	Q	
						N16E37	0	0	0			N16E37	Q	
						S21E54	2	0	0			S21E54	CE	
						N16E56	0	0	0			N16E56	Q	
						N21E38	0	0	0			N21E38	Q	
037	06	05	171	203	010	N18W36	0	0	0	PRESTO TOYOKAWA	06	N18W36	Q	SOLQUIET MAGQUIET
						N07W32	6	0	0	05/0750Z TENFLARE		N07W32	E	STRATWARM /TUESDAY/ STRATWARM EXISTS.
						S12E12	1	0	0	190 FLUX UNITS		S12E12	Q	STRONG WARMING IN MID STRATOSPHERE
						N14W25	0	0	0	05/0638Z DURATION		N14W25	Q	OVER NORTHERN SIBERIA.
						N36E27	0	0	0	07 MINUTES		N36E27	Q	
						S20E40	9	1	0			S20E40	A	
						N16E42	3	0	0			N16E42	E	

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
038	07	06	264	212	015	N19W49	0	0	0		07	N19W49	Q	SOLQUIET MAGQUIET
						N08W45	3	1	0			N08W45	E	STRATWARM /WEDNESDAY/ STRATWARM
						S13W24	1	0	0			S13W24	Q	EXISTS. STRONG WARMING IN MID
						N14W38	1	0	0			N14W38	Q	STRATOSPHERE OVER SIBERIA MOVING
						S22W09	0	0	0			S22W09	Q	NORTHEASTWARD.
						N36E15	0	0	0			N36E15	Q	
						S20E27	8	0	0			S20E27	A	
						N16E29	3	0	0			N16E29	Q	
						N19E10	0	0	0			N19E10	Q	
						N19W33	0	0	0			N19W33	Q	
						S19E40	0	0	0			S19E40	Q	
						S16E79	0	0	0			S16E79	Q	
039	08	07	297	209	009	N15W59	0	0	0		08	N15W59	Q	SOLQUIET MAGQUIET
						N08W59	1	0	0			N08W59	Q	
						S13W36	0	0	0			S13W36	Q	
						N15W52	0	0	0			N15W52	Q	
						S25W24	0	0	0			S25W24	Q	
						N35E03	1	0	0			N35E03	Q	
						S20E13	2	1	0			S20E13	A	
						N14E16	1	0	0			N14E16	Q	
						N15E03	0	0	0			N15E03	Q	
						N20W45	0	0	0			N20W45	Q	
						S18E28	1	0	0			S18E28	Q	
						S19E65	2	0	0			S19E65	Q	
040	09	08	241	216	009	N15W73	0	0	0	PRESTO TOYOKAWA	09	N15W73	Q	SOLQUIET MAGQUIET
						N08W72	1	0	0	08/0224Z TENFLARE		N08W72	Q	STRATWARM /FRIDAY/ STRATWARM EXISTS.
						S12W51	0	0	0	140 FLUX UNITS		S12W51	CE	STRATOSPHERIC WARMING SPREADING OVER
						S20W33	0	0	0	08/0201Z IN PRO-		S20W33	Q	POLAR AREA.
						S19E01	2	1	0	GRESS 25 PER-		S19E01	A	
						N16E04	4	1	0	CENT EAST		N16E04	A	
						N15W08	0	0	0			N15W08	Q	
						S19F13	1	0	0			S19E13	CE	
						S19E51	1	0	0			S19E51	CE	
						S35E64	0	0	0			S35E64	Q	
						N12E76	0	0	0			N12E76	Q	
						N15W68	2	1	0			N15W68	Q	
041	10	09	187	204	006	N08W86	1	0	0		10	N08W86	DA	SOLQUIET MAGQUIET
						S12W66	0	0	0			S12W66	Q	STRATWARM /SATURDAY/ STRATWARM EXISTS.
						S20W12	4	0	0			S20W12	A	STRATOSPHERIC WARMING SPREADING OVER
						N16W10	13	1	0			N16W10	A	POLAR REGION.
						N16W22	0	0	0			N16W22	Q	
						S19E01	2	0	0			S19E01	E	
						S18E38	0	0	0			S18E38	E	
						S36E51	0	0	0			S36E51	Q	
						N11E63	0	0	0			N11E63	Q	
042	11	10	179	204	005	S14W84	0	0	0		11	S14W84	Q	SOLALERT MAGQUIET
						S20W25	3	0	0			S20W25	DA	
						N16W27	10	1	0			N16W27	DP	
						S20W12	0	0	0			S20W12	DE	
						S17E23	0	0	0			S17E23	CE	
						S36E39	0	0	0			S36E39	DE	
						N11E05	0	0	0			N11E05	Q	
						S22E42	0	0	0			S22E42	Q	
						N17E62	0	0	0			N17E62	Q	
043	12	11	255	210	007	S21W38	1	0	0		12	S21W38	E	SOLALERT 12/XX MAGQUIET
						N15W40	7	1	0			N15W40	A	
						S20W25	1	0	0			S20W25	CE	
						S16E10	1	0	0			S16E10	E	
						S35E25	1	0	0			S35E25	E	
						N11E37	0	0	0			N11E37	Q	
						S22E31	0	0	0			S22E31	Q	
						N12E47	0	0	0			N12E47	Q	
						S16W41	0	0	0			S16W41	Q	
						S13E08	0	0	0			S13E08	Q	
						S10E32	0	0	0			S10E32	Q	
						N19E78	0	0	0			N19E78	Q	

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044	13	12	257	199	018	S22W52	0	0	0	PRESTO BOULDER	13	S22W52	Q	SOLALERT MINOR 13 MAGQUIET
						N15W52	4	2	0	SOFLARE M2/1B		N15W52	A	
						S20W38	1	0	0	S35E16 12/1946Z		S20W38	Q	
						S17W02	1	0	0	DURATION 22 MINUTES		S17W02	E	
						S36E12	2	1	0	TENFLARE 250 FLUX		S36E12	A	
						N10E24	0	0	0	UNITS 12/1950Z		N10E24	Q	
						S18W56	0	0	0	DURATION 5 MINUTES		S18W56	Q	
						S12W05	0	0	0			S12W05	Q	
						S11E18	0	0	0			S11E18	Q	
						N19E65	1	0	0			N19E65	E	
						N27W18	0	0	0			N27W18	Q	
						S27E23	0	0	0			S27E23	Q	
						N20E27	0	0	0			N20E27	Q	
						N02E68	0	0	0			N02E68	Q	
045	14	13	219	202	005	S21W64	0	0	0		14	S21W64	Q	SOLALERT MINOR 14 MAGQUIET
						N15W68	3	1	0			N15W68	A	
						S19W53	0	0	0			S19W53	Q	
						S17W16	2	1	0			S17W16	Q	
						S37W00	3	0	0			S37W00	E	
						N11E10	0	0	0			N11E10	Q	
						S23E05	0	0	0			S23E05	Q	
						S17W70	0	0	0			S17W70	Q	
						S13W18	0	0	0			S13W18	Q	
						S10E04	0	0	0			S10E04	Q	
						N19E51	3	1	0			N19E51	A	
						N22E13	0	0	0			N22E13	Q	
						N03E56	0	0	0			N03E56	Q	
						S16E47	0	0	0			S16E47	Q	
						N16E72	0	0	0			N16E72	Q	
046	15	14	236	229	003	N15W83	3	1	0		15	N15W83	A	SOLALERT MINOR 15 MAGQUIET
						S18W70	0	0	0			S18W70	Q	
						S17W30	0	0	0			S17W30	Q	
						S36W12	0	0	0			S36W12	Q	
						N11W02	0	0	0			N11W02	Q	
						N19E37	2	0	0			N19E37	Q	
						N22E01	0	0	0			N22E01	Q	
						N03E43	2	0	0			N03E43	Q	
						S16E34	1	0	0			S16E34	Q	
						N16E61	5	1	0			N16E61	A	
						S18W21	0	0	0			S18W21	Q	
						S22E09	0	0	0			S22E09	Q	
						N18E76	0	0	0			N18E76	E	
						S27E77	0	0	0			S27E77	Q	
047	16	15	232	216	010	S18W83	0	0	0		16	S18W83	Q	PROTON FLARE ALERT 16/XX MAGALERT MAJOR 17/18
						S17W44	0	0	0			S17W44	Q	
						S38W30	0	0	0			S38W30	Q	
						N11W16	0	0	0			N11W16	Q	
						N18E25	1	0	0			N18E25	E	
						N22W10	0	0	0			N22W10	Q	
						N01E31	1	0	0			N01E31	E	
						S15E21	0	0	0			S15E21	Q	
						N16E46	6	1	0			N16E46	P	
						S18W37	0	0	0			S18W37	Q	
						N15E54	1	0	0			N15E54	E	
						S28E64	0	0	0			S28E64	Q	
048	17	16	183	214	006	S17W56	0	0	0	PRESTO BOULDER 16/0310Z SOFLARE X2/2B N15E48 16/0141Z DURATION 40 MINUTES TENFLARE 780 FLUX UNITS 16/2234Z DURATION 5 MINUTES TENFLARE 48000 FLUX UNITS 16/0143Z DURATION 30 MINUTES. TOKYO REPORTED 1250 FLUX UNITS AT 16/0141Z, MANILA REPORTED 80000 FLUX UNITS AT 16/0144Z, PALEHUA REPORTED 480000 FLUX UNITS AT 16/0141Z	17	S17W56	Q	SOLALERT 17/XX MAGALERT MINOR 17/18
						S38W44	0	0	0			S38W44	Q	
						N11W28	0	0	0			N11W28	Q	
						N19E12	2	1	0			N19E12	A	
						N22W24	0	0	0			N22W24	Q	
						N01E18	0	0	0			N01E18	Q	
						S19E09	0	0	0			S19E09	Q	
						N16E34	2	1	1			N16E34	CP	
						N16E43	0	0	0			N16E43	Q	
						S27E50	2	0	0			S27E50	E	

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: No. Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
049	18	17	316	215	008	S15W69	0	0	0	PRESTO TENFLARE	18	S15W69	Q	SOLALERT 18/XX MAGALERT 18/19
						S39W52	0	0	0	17/0019Z 270 FLUX		S39W52	Q	
						N10W40	0	0	0	UNITS. DURATION 5		N10W40	Q	
						N18W02	8	2	0	MINUTES. TENFLARE		N18W02	A	
						N21W36	0	0	0	17/0232Z 500 FLUX		N21W36	Q	
						N02E04	1	0	0	UNITS DURATION 5		N02E04	E	
						S16W04	0	0	0	MINUTES.		S16W04	Q	
						N17E24	9	0	0	PROTON EVENT BEGAN		N17E24	A	
						S22W30	0	0	0	AT 17/1930Z 2D		S22W30	Q	
						S24E38	2	0	0	PROTON/CM²/SEC/STER		S24E38	E	
						N08W08	2	0	0	AT >10 MEV. MAX		N08W08	E	
						N22E58	0	0	0	AT 17/2130Z. END		N22E58	Q	
						S24E82	0	0	0	17/2310Z.		S24E82	Q	
050	19	18	292	220	013	S16W81	0	0	0	PRESTO SOFLARE	19	S16W81	Q	PROTON FLARE ALERT 19/XX MAGALERT 20/XX
						S39W66	0	0	0	X1/SB N16E13		S39W66	Q	
						N10W53	0	0	0	18/0639Z DURATION		N10W53	Q	
						N18W18	6	0	1	17 MINUTES		N18W18	A	
						N21W49	0	0	0	SOFLARE X1/2B		N21W49	Q	
						N02W09	1	0	0	N17W13 18/1633Z		N02W09	Q	
						S15W17	0	0	0	DURATION 19 MINUTES		S15W17	Q	
						N17E10	9	1	1	TENFLARE 690 FLUX		N17E10	A	
						S21W46	0	0	0	UNITS 18/1632Z DU-		S21W46	Q	
						S27E24	0	0	0	RATION 5 Minutes		S27E24	E	
						N08W21	0	0	0			N08W21	E	
						N22E44	0	0	0			N22E44	Q	
						S24E69	0	0	0			S24E69	Q	
						N27E56	0	0	0			N27E56	Q	
051	20	19	309	243	016	S38W79	0	0	0		20	S38W79	Q	SOLALERT 20/XX MAGALERT MINOR 20/21
						N18W31	4	1	0			N18W31	A	
						N22W66	0	0	0			N22W66	Q	
						N02W23	0	0	0			N02W23	E	
						S16W31	0	0	0			S16W31	Q	
						N16W02	6	1	0			N16W02	A	
						S27E11	0	0	0			S27E11	E	
						N08W35	0	0	0			N08W35	Q	
						N22E32	0	0	0			N22E32	Q	
						S25E56	0	0	0			S25E56	Q	
						N26E45	0	0	0			N26E45	Q	
						S16E36	1	0	0			S16E36	Q	
						S21W22	0	0	0			S21W22	Q	
						S25E71	0	0	0			S25E71	Q	
052	21	20	241	238	004	N18W45	6	2	0	PRESTO TOYOKAWA	21	N18W45	A	SOLALERT 21/XX MAGALERT MINOR 21/XX
						N21W80	1	0	0	20/2320Z TENFLARE		N21W80	E	
						N03W37	2	1	0	200 FLUX UNITS		N03W37	Q	
						S15W45	0	0	0	20/2216Z DURATION		S15W45	Q	
						N16W16	13	3	0	5 MINUTES		N16W16	A	
						S27W01	0	0	0			S27W01	Q	
						N08W48	0	0	0			N08W48	Q	
						N22E20	1	0	0			N22E20	Q	
						S25E44	0	0	0			S25E44	Q	
						N26E34	0	0	0			N26E34	Q	
						S25E58	0	0	0			S25E58	Q	
						N36E65	0	0	0			N36E65	Q	
053	22	21	250	230	036	N19W57	0	0	0	PRESTO BOULDER	22	N19W57	E	SOLALERT 22/24 MAGALERT 22/24
						S14W57	0	0	0	21/1450Z		S14W57	Q	
						N17W29	8	2	1	SOFLARE X1/1B N17W28		N17W29	A	
						S27W12	0	0	0	21/1413Z DURATION		S27W12	Q	
						N09W61	0	0	0	32 MINUTES		N09W61	E	
						N20E07	0	0	0			N20E07	Q	
						S25E31	0	0	0			S25E31	Q	
						S16E10	0	0	0			S16E10	Q	
						S21W48	1	0	0			S21W48	Q	
						S26E45	0	0	0			S26E45	Q	
						N35E52	0	0	0			N35E52	Q	
						S15W46	0	0	0			S15W46	Q	
054	23	22	219	230	044	N19W70	5	0	0	PRESTO BOULDER	23	N19W70	A	SOLALERT 23/25 MAGALERT 23/25 STRATWARM /FRIDAY/ STRATOSPHERIC POLAR VORTEX SPLIT WITH EASTERLIES OVER POLAR REGION, FURTHER WARMING LIKELY.
						N17W43	11	5	0	22/1430Z		N17W43	A	
						S27W26	0	0	0	SOFLARE M9/1B		S27W26	Q	
						N09W75	2	0	0	N17W35 22/0507Z		N09W75	E	
						N22W05	0	0	0	18 MINUTES DURATION		N22W05	Q	
						S25E18	0	0	0	TENFLARE 240 FLUX		S25E18	Q	
						S16W03	0	0	0	UNITS 22/0506Z		S16W03	Q	
						S21W61	0	0	0	DURATION 22 MINUTES		S21W61	Q	
						S26E32	0	0	0			S26E32	Q	
						N35E39	0	0	0			N35E39	Q	
						S15W61	0	0	0			S15W61	Q	

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						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
055	24	23	223	201	021	N19W84	0	0	0		24	N19W84	E	SOLALERT 24/25 MAGALERT 24
						N18W57	14	2	0			N18W57	DP	STRATWARM /SATURDAY/ STRATWARM
						S27W40	0	0	0			S27W40	Q	EXISTS. INCREASING RIDGING ACROSS
						N09W89	0	0	0			N09W89	Q	POLE WITH RENEWED WARMING OVER ARCTIC
						S25E06	0	0	0			S25E06	Q	SIBERIA.
						S15W15	0	0	0			S15W15	Q	STRATWARM /TUESDAY/ STRATWARM
						S26E19	0	0	0			S26E19	Q	EXISTS. CONTINUED WARMING OVER
						N35E27	0	0	0			N35E27	Q	ARCTIC SIBERIA AND RIDGING ACROSS
						S15W73	0	0	0			S15W73	Q	POLE.
						S20W03	0	0	0			S20W03	Q	
						S22W33	0	0	0			S22W33	Q	
						S22E73	0	0	0			S22E73	Q	
						S21W74	0	0	0			S21W74	Q	
						N12E69	0	0	0			N12E69	Q	
056	25	24	157	186	014	N18W73	9	1	0		25	N18W73	CA	SOLALERT 25 MAGALERT 25/26
						S27W53	0	0	0			S27W53	Q	
						S25W08	0	0	0			S25W08	Q	
						S27E06	2	0	0			S27E06	Q	
						N35E14	0	0	0			N35E14	Q	
						S20W16	1	0	0			S20W16	Q	
						S21W46	0	0	0			S21W46	Q	
						N10E55	1	0	0			N10E55	Q	
						S22E60	1	0	0			S22E60	Q	
						N12E05	0	0	0			N12E05	Q	
057	26	25	158	170	009	N18W85	1	0	0		26	N18W85	A	SOLALERT 26/27 MAGNIL
						S26W64	0	0	0			S26W64	Q	
						S25W19	0	0	0			S25W19	Q	
						S26W04	1	0	0			S26W04	Q	
						N36E02	0	0	0			N36E02	Q	
						S19W28	1	0	0			S19W28	Q	
						S21E48	2	1	0			S21E48	E	
						S33W11	1	0	0			S33W11	A	
						S12W44	1	0	0			S12W44	Q	
						S24E72	1	0	0			S24E72	Q	
058	27	26	171	171	018	S25W76	0	0	0		27	S25W76	Q	SOLNIL MAGQUIET
						S23W33	0	0	0			S23W33	Q	STRATWARM /WEDNESDAY/ STRATWARM
						S26W18	0	0	0			S26W18	Q	EXISTS. WARMING AND ANTICYCLONIC
						N36W12	0	0	0			N36W12	Q	CIRCULATION INTENSIFYING OVER ARCTIC
						S18W41	0	0	0			S18W41	Q	REGION.
						S21E35	3	0	0			S21E35	Q	
						S33W23	1	0	0			S33W23	Q	
						S12W55	0	0	0			S12W55	Q	
						S26E64	9	0	0			S26E64	Q	
						S19E03	0	0	0			S19E03	Q	
						S27E37	0	0	0			S27E37	Q	
059	28	27	152	166	015	S22W88	0	0	0		28	S22W88	Q	SOLQUIET MAGQUIET
						S22W44	0	0	0			S22W44	Q	
						S24W30	0	0	0			S24W30	Q	
						N37W21	1	0	0			N37W21	Q	
						S23E25	0	0	0			S23E25	Q	
						S32W36	2	0	0			S32W36	Q	
						S27E51	0	0	0			S27E51	Q	
						S18W11	4	0	0			S18W11	Q	
						N07E73	0	0	0			N07E73	Q	
						S23E81	1	0	0			S23E81	Q	
060	01	28	143	167	013	S25W56	0	0	0		01	S25W56	Q	SOLQUIET MAGQUIET
						S26W43	0	0	0			S26W43	Q	STRATWARM /THURSDAY/ STRATWARM
						N36W35	0	0	0			N36W35	Q	EXISTS. WARMING AND ANTICYCLONIC
						S21E12	0	0	0			S21E12	Q	CIRCULATION OVER ARCTIC REGION.
						S32W48	0	0	0			S32W48	Q	
						S25E38	1	0	0			S25E38	Q	
						S18W23	1	0	0			S18W23	E	
						N08E60	4	0	0			N08E60	E	
						S22E65	5	0	0			S22E65	Q	
						S33W15	0	0	0			S33W15	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1978 FINAL												1979 PROVISIONAL	
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	90	124	102	70	85	119	64	42	136	96	109	110	158	116
2	94	120	92	68	89	98	61	48	167	112	122	110	158	127
3	104	130	95	71	93	78	51	38	159	105	125	117	191	148
4	103	142	98	75	92	60	48	62	162	100	129	115	157	123
5	91	137	84	94	89	51	54	74	177	73	121	104	146	134
6	79	129	75	92	85	31	63	66	177	74	108	122	173	146
7	55	122	90	88	75	39	84	58	147	95	112	138	163	144
8	39	98	99	105	63	45	105	62	120	103	118	148	172	142
9	36	97	94	126	62	36	108	64	109	121	108	152	165	139
10	15	102	92	125	60	29	115	67	99	149	120	144	163	137
11	20	112	88	120	63	57	127	58	84	158	118	170	157	137
12	26	115	78	109	66	62	111	71	72	158	99	188	159	138
13	33	96	73	105	74	62	114	93	92	156	90	165	159	152
14	37	82	72	91	74	64	109	93	113	170	78	150	162	163
15	34	65	74	90	78	89	102	77	133	166	59	140	178	161
16	27	64	74	95	91	94	110	52	143	163	77	143	164	159
17	26	58	74	99	86	103	98	50	136	143	92	146	164	160
18	14	57	74	103	89	115	84	50	156	135	93	132	146	162
19	8	56	65	111	84	109	77	42	159	154	85	95	138	166
20	8	58	59	115	74	109	76	30	163	151	76	84	177	169
21	19	65	77	114	76	154	77	30	171	144	68	68	181	171
22	28	73	84	115	74	158	48	36	148	125	77	63	178	155
23	40	76	88	119	73	158	38	45	156	116	55	59	188	127
24	48	91	85	106	82	154	38	48	163	104	61	65	209	99
25	38	94	74	136	85	135	30	55	168	96	85	81	209	88
26	49	90	60	115	88	152	13	45	152	102	101	93	173	108
27	67	85	52	99	97	143	22	57	142	115	118	110	162	97
28	78	88	49	83	93	130	31	57	126	117	118	122	157	95
29	90		48	78	103	115	48	59	122	137	111	135	153	
30	103		45	75	107	103	39	72	94	128	103	159	149	
31	118		58		113		36	100		111		177	130	
MEAN	51.9	93.6	76.5	99.7	82.7	95.1	70.4	58.1	138.2	125.1	97.9	122.7	165.8	138.0

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1978												1979	
DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	126.9*	139.1	136.3	130.0	181.4	149.1	142.9	106.0	159.8	139.0	152.0	166.6	194.1*	185.8
2	133.9	152.6	141.1	129.8	183.0	147.0*	127.6	106.0	171.7*	137.8	159.0	167.6	200.1	185.6
3	130.2	156.6*	146.6	134.5	182.2A	130.8	116.5	109.6	167.0	131.7	169.9	164.2	203.5*	187.4*
4	124.8	154.0	148.4	143.3*	178.4	118.6	117.4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7
5	119.2	159.0	154.5	146.7*	173.9*	116.9	118.9	117.6	179.4	138.7*	181.2	169.5	194.9	197.4
6	118.7*	156.1	162.8	145.3*	173.1	109.8	119.3*	122.6	181.1	137.4	172.2*	164.5	190.9	206.5
7	111.6	157.3	165.2	146.9	162.6*	110.6	128.9	128.2	177.5	141.6	174.6	178.5*	186.2	203.4
8	102.8	157.0*	168.7	148.6	143.4	109.3	135.9	130.6	167.1	150.1	168.0*	189.9	200.1	207.2*
9	97.0	155.2	183.7	156.1	135.1	106.5	147.1*	128.1*	157.6*	155.8	164.9*	189.6	192.6	198.7
10	93.5	148.7	179.1	155.4	129.5	108.4	156.0*	127.5	149.8	162.3	166.3	204.7	186.2	198.4*
11	93.1	154.2	175.2	162.8*	133.8	113.2	163.2*	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*
12	92.1	159.0	169.8	156.2	138.2	116.4*	174.2*	124.5	138.5	177.2	150.4	217.3	174.5	195.4
13	90.3	151.2	160.9	145.6	140.2	120.3*	165.5	134.9	138.0	178.5	145.3	210.6*	193.9	195.4
14	88.6	148.4	160.5	139.1	143.7	126.4*	163.1	132.7	143.5*	180.1	136.3	197.0	200.8*	204.2*
15	89.6	136.8	154.2	141.4	146.1	132.5	169.5	130.0*	152.6	182.0	133.8	192.7	192.1*	205.0*
16	86.4	130.2	143.3	137.6	147.8*	139.5*	163.4	123.6	161.5	176.7*	128.8	180.5	189.9*	209.2
17	83.8	125.9	135.4	133.4	143.8	149.0	159.5	119.3*	161.8	171.5	128.1	177.7	175.7	213.1
18	84.7	124.9	132.3	134.1	135.6	153.5*	154.1*	115.6	169.3*	169.4	127.4	161.5	177.6	237.7
19	85.4	119.1	128.1	139.5*	133.6	162.0*	148.6	111.6	168.8*	170.4	128.9	152.9	187.8	237.8
20	87.8	122.2	125.3	138.1	132.3*	174.2	142.9*	107.5	168.6	171.0	134.9	138.1	197.2	230.1*
21	91.4	122.2	118.2	138.4*	132.7	185.4*	140.2	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1
22	96.9	127.7	117.0	146.4	135.7*	190.3	127.0	106.0	171.5*	161.4	127.1	132.7	226.9	223.3
23	99.6	131.8	116.4	162.9	142.9*	196.7	123.4*	104.1	165.5*	161.4	121.9	133.4	225.1	196.0
24	100.4	135.6	117.5	159.8	146.5*	194.8	118.5	105.4	158.9	156.9	123.5	135.2*	208.5	182.8
25	103.3	139.3	118.2	159.1*	147.6	183.5	113.7	104.2	157.2	156.1	124.7*	138.0	206.1	167.5
26	112.7	134.8	112.5	166.7	152.8	182.4*	112.2	100.7	148.5	154.4	132.7	144.2	192.9	166.0
27	116.4	137.5	114.1	172.8	150.6*	179.5	110.8	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7
28	127.7*	135.4	112.7	176.6*	147.1*	174.1	109.9	107.7*	147.8	148.4*	154.1	164.1	209.6	163.6
29	132.2*		111.1	185.2	148.6	167.4	109.2	116.2	148.1	149.8	162.2	166.2	209.3	
30	134.9		115.4*	182.1*	147.2*	154.6*	109.2	124.1	142.6	146.5	167.8	181.7	194.1*	
31	133.3*		124.5		152.6		108.8	133.9*		144.0		195.1	193.7	
MEAN	106.1	141.8	140.3	150.5	149.7	146.8	135.4	116.9	159.6	157.1	148.2	170.0	196.5	199.1

* adjusted for burst
A = interpolated data point

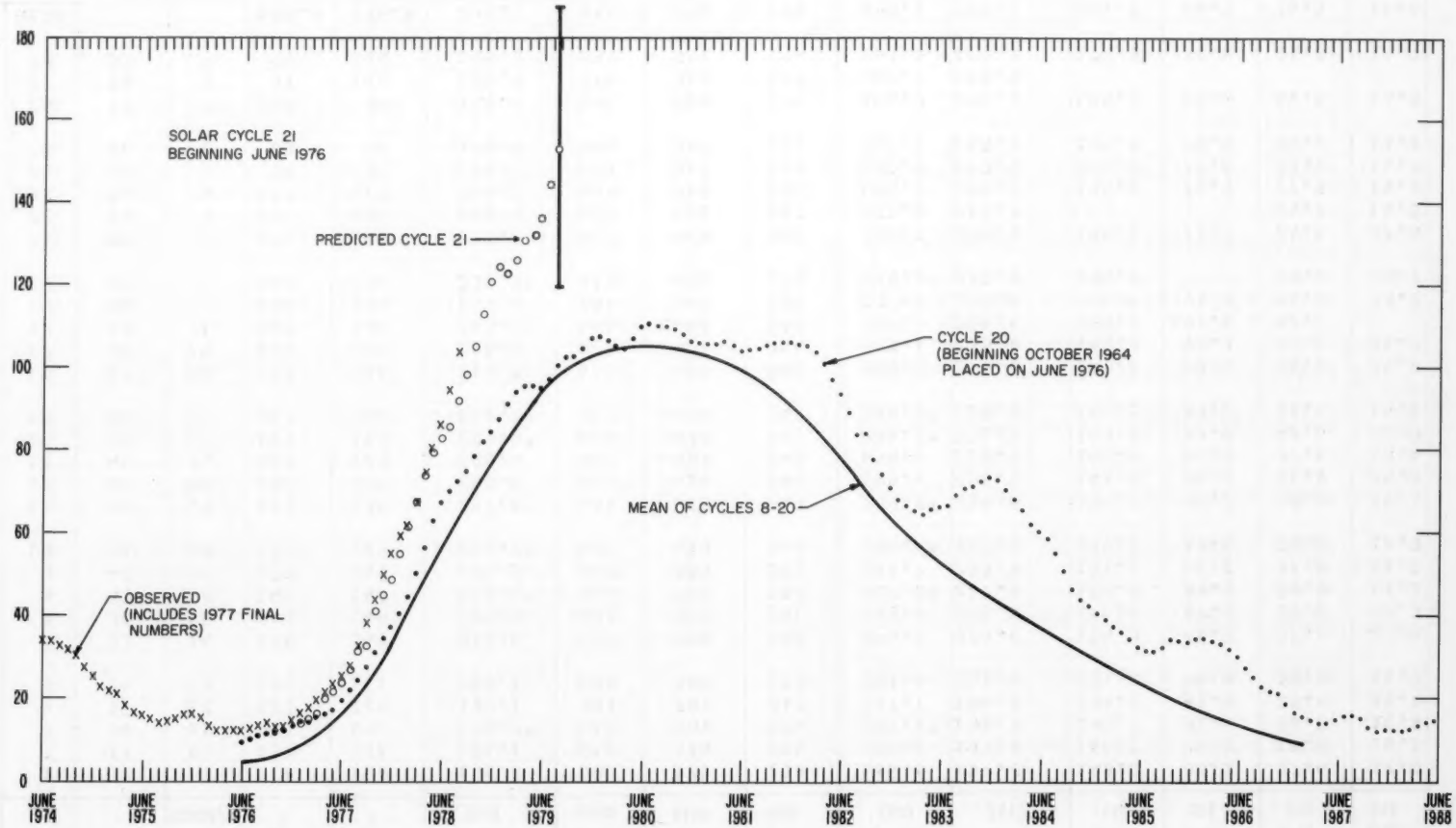
DAILY SOLAR INDICES

FEBRUARY 1979

FEB 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	32	9	116	110	191.4	590	375	208	185.8	197.2	148.2	85.2	37.6	17.0
2	33	10	127	108	191.1	612	374	224	185.6	193.6	146.2	82.1	19.9	10.5
3	34	11	148	142	193.0*	610	367	224	187.4*	196.9	141.7	81.6	26.2	10.0
4	35	12	123	129	193.1	601	367	217	187.7	194.3	134.0	91.4	25.4	12.4
5	36	13	134	111	203.1	609	365	226	197.4	211.6	151.2	86.9	39.0	12.2
6	37	14	146	140	212.4	608	376	238	206.5	220.8	154.8	86.5	37.6	12.4
7	38	15	144	149	209.0	602	372	231	203.4	220.5	156.4	87.3	39.6	12.3
8	39	16	142	140	213.0*	614	383	233	207.2*	227.5	158.0	89.1	28.9	13.3
9	40	17	139	140	204.2	610	389	223	198.7	203.9	151.6	82.2	37.9	13.5
10	41	18	137	129	203.7*	625	419	240	198.4*	207.6	155.2	88.9	38.3	12.9
11	42	19	137	135	207.6*	631	429	249	202.2*	216.5	156.7	88.8	43.2	15.1
12	43	20	138	129	200.6	613	406	242	195.4	206.5	143.6	84.6	31.0	35.3
13	44	21	152	129	200.4	623	401	243	195.4	213.2	142.6	82.8	37.6	13.4
14	45	22	163	150	209.4*	645	433	261	204.2*	231.5	140.2	83.9	42.6	12.9
15	46	23	161	154	210.3*	612	404	247	205.0*	228.0	143.1	83.2	38.4	14.2
16	47	24	159	158	214.3	615	425	260	209.2	235.5	149.5	88.4	38.6	24.4
17	48	25	160	178	218.3	628	423	254	213.1	230.0	150.3	92.3	46.1	31.3
18	49	26	162	192	243.3	656	U448	289	237.7	256.1	160.0	101.0 U	62.6	
19	50	27	166	184	243.4	634	445	285	237.8	249.6	164.5	91.2 U	44.3	33.2
20	51	1	169	194	235.3*	618	422	278	230.1*	232.5	154.0		28.4	19.7
21	52	2	171	190	230.2	629	414	265	225.1	234.0	145.1	71.7	24.8	27.6
22	53	3	155	135	228.3	629	421	253	223.3	212.7			24.7	14.8
23	54	4	127	113	200.2	609	386	232	196.0	195.1	112.6	76.9	27.9	14.1
24	55	5	99	97	186.7	601	367	214	182.8	179.0	108.9	79.8	22.9	11.7
25	56	6	88	88	170.9	596	347	201	167.5	165.8	104.6	78.5	26.2	13.1
26	57	7	108	97	169.4	585	328	195	166.0	154.4	109.3	80.6	40.5	13.8
27	58	8	97	102	165.9	574	320	179	162.7	155.9				
28	59	9	95	108	166.8	599	352	194	163.6	170.1	102.9	78.4	21.8	11.7
MEAN			138.0	136.8	204.1	614	391	236	199.1	208.6	141.7	84.9	34.5	16.6

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.7	112.5	116.8	122.8
									(3)	(5)	(6)	(9)
1979	127.8	132.2	136.5	139.2	141.7	146.2	150.5	153.4	155.6	156.9	157.3*	156.9
	(12)	(14)	(17)	(22)	(26)	(29)	(32)	(34)	(35)	(35)	(36)	(37)
1980	155.4	153.8	152.9	153.4	152.8	149.4	145.6	142.5	140.7	139.6	138.1	136.7
	(37)	(36)	(35)	(34)	(36)	(38)	(40)	(41)	(41)	(43)	(44)	(47)
1981	136.5	136.1	133.7	130.6	127.9	125.0	123.6	123.3	122.2	120.5	117.9	114.7
	(50)	(49)	(47)	(46)	(46)	(46)	(45)	(44)	(44)	(44)	(43)	(41)
1982	111.7	108.5	106.0	104.1	102.0	99.8	96.1	91.5	87.3	82.6	79.2	75.5
	(38)	(37)	(36)	(35)	(32)	(30)	(28)	(26)	(24)	(21)	(20)	(20)
1983	71.1	68.0	65.8	63.4	60.9	58.3	56.0	54.1	52.3	51.2	50.4	49.6
	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(26)	(28)	(30)	(31)	(31)
1984	48.5	46.6	43.7	40.4	37.9	36.8	35.9	34.3	32.7	31.4	30.1	28.5
	(31)	(30)	(29)	(29)	(30)	(31)	(32)	(32)	(31)	(29)	(28)	(27)
1985	27.4	26.6	25.8	25.4	24.7	23.7	23.0	22.3	21.6	20.8	19.9	19.3
	(27)	(27)	(26)	(26)	(26)	(25)	(23)	(23)	(23)	(23)	(24)	(24)
1986	18.7	17.9	17.1	16.2	14.8	13.5	12.6	12.0	11.8	11.6	11.5	11.5
	(25)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	12.0	12.7	13.6	14.7	15.8	17.0	18.1					
	(12)	(11)	(11)	(12)	(13)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 156 ± 33.

Hα SOLAR FLARES

FEBRUARY 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			CORD.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
CATA	01	0805	0815	0905D	S21	E55	.822	15800	5.5	60D	2B	2	P	0815	534	9.6	
MONT	01	0812	0812	0858	S22	E59	.858	15800	5.8	46	2N		C	0812	1000		B
CATA	01	0905	0905	0905D	S21	E90	.999	15008	8.1		1F	2	P	0905	84		
RAMY	01	1618	1618	1636	N 7	E24	.458		3.5	18	SN	3	C		30		
RAMY	01	1646	1653	1700	N 7	E24	.458		3.5	14	SN	3	C		26		
RAMY	01	1646	1648	1649	N 7	E24	.458		3.5	3	SN	3	C		26		
RAMY	01	1702	1705	1719	S15	E46	.720		5.2	17	SN	3	C		49		F
MCMA	01	1749	1755	1805	S12	E48	.740	15740	5.3	16	SF		C	1755	30	.5	E
MCMA	01	1805	1808	1825	N08	E26	.492	15802	3.7	20	SF		C	1808	30	.3	EH
MCMA	01	1847	1857	1910	N21	E21	.559	15796	3.4	23	SN		C	1857	60	.7	E
PALE	01	1849E		1906D	N21	E26	.604		3.7	17D	SN	2	C		0		DE
MCMA	01	1928	1938	2000	S12	E46	.717	15804	5.3	32	SN		C	1938	25	.4	D
RAMY	01	1933	1934	1950	S13	E46	.717		5.3	17	SB	3	C		52		F
RAMY	01	2033	2033	2038	N 9	E26	.499		3.8	5	SB	3	C		24		F
PALE	01	2333	2333	2342	S13	E42	.669		5.1	9	SN	3	C		35		DE
MITK	02	0015	0022	0032	N05	E15	.320		3.1	17	SN		C	0022			E
MANI	02	0018E	0021	0022D	N 5	E15	.320		3.1	4D	SB	2	C		110		F
PALE	02	0026	0026	0033	N 7	E21	.418		3.6	7	SB	3	C		120		F
MANI	02	0042E	0044	0104D	N 8	E25	.479		3.9	22D	SB	2	C		80		F
MITK	02	0047E	0105	0145	N10	E23	.469		3.8	58D	SN		C	0105			E
MITK	02	0155	0208	0240D	N11	E30	.565	15802	4.3	45D	1N		C	0208	180	2.2	
MITK	02	0200	0207	0224	N09	E20	.423	15802	3.6	24	1F		C	0207	220	2.5	
MITK	02	0428E		0434D	N09	E22	.448		3.8	6D	SN		P	0428			E
KAND	02	0655E	0706	0711	S12	E43	.680		5.5	16D	SN		C		125		
KAND	02	0655E	0707	0730	S20	E90	.999		9.0	35D	SN		C				
KAND	02	0718	0725	0743	N10	E21	.444		3.9	25	SF		C		73		
ISTA	02	0835E		0841	N09	E20	.423		3.9	6D	SF						E
ISTA	02	0858E		0903	S35	E14	.525		3.4	5D	SF						D
CATA	02	1258	1258	1304D	S20	E83	.989	15808	8.8	6D	2N	1	P	1258	168		
MCMA	02	1800	1803	1805D	S13	E36	.590	15804	5.5	5D	SN		C	1803	35	.4	D
PALE	03	0049	0049	0052	N 7	E 7	.257		3.6	3	SN	3	C		22		DE
RAMY	03	1627	1627	1631	S15	E20	.367		5.2	4	SN	2	C		26		
RAMY	03	1714	1714	1720	N 6	W 4	.221		3.4	6	SN	3	C		30		
RAMY	04	1532	1535	1539	N21	W14	.507		3.6	7	SN	3	C		24		
MCMA	04	1623E		1625D	N18	W20	.519	15796	3.2	2D	SF		C	1625	50	.6	E
RAMY	04	1626	1626	1632	N21	W14	.507		3.6	6	SN	3	C		28		
RAMY	04	1632	1644	1652	N21	W14	.507		3.6	20	SN	3	C		30		
RAMY	04	1708	1708	1714	S14	E 6	.170		5.2	6	SN	3	C		31		
HOLL	04	1708	1708	1717	S15	E 7	.193		5.2	9	SN	3	C		34		
HOLL	04	1724	1725	1740	S20	E57	.838		9.0	16	SB	3	C		91		U F
RAMY	04	1724	1726	1739	S20	E56	.829	15808	8.9	15	1B	3	C		108		
RAMY	04	1754	1754	1802	S14	E 6	.170		5.2	8	SN	3	C		27		
HOLL	04	1754	1754	1812	S15	E 6	.183		5.2	18	SB	3	C		33		F
HOLL	04	1822	1828	1847	S15	E 6	.183		5.2	25	SB	3	C		172		F
RAMY	04	1822	1828	1847	S14	E 5	.160		5.1	25	SB	3	C		197		DE
BIGB	04	1823	1828	1841	S13	E16	.295		6.0	18	SN	2	C	1828	180	1.9	
MCMA	04	1823	1827	1847	S13	E05	.146	15804	5.1	24	SB		C	1827	120	1.3	E
RAMY	04	1835	1905	1927	N 6	W16	.344	15802	3.6	52	1B	3	C		201		F
MCMA	04	1842	1855	1925D	N08	W15	.352	15802	3.7	43D	SN		C	1855	110	1.2	E
BIGB	04	1847	1907	1921	N10	W15	.375		3.7	34	SN	3	C	1907	180	1.9	E
HOLL	04	1849	1858	1920	N 6	W16	.344		3.6	31	SB	3	C		47		FDE
RAMY	04	1857	1903	1931	N13	W 9	.362		4.1	34	SN	3	C		55		
HOLL	04	1859	1903	1928	N13	W 9	.362		4.1	29	SN	3	C		42		
BIGB	04	2120	2123	2133	S19	E55	.819		9.0	13	SN	3	C	2123	65	1.8	E
RAMY	04	2121	2123	2129	S20	E54	.810		8.9	8	SN	2	C		46		
HOLL	04	2122	2124	2126	S20	E53	.801		8.9	4	SN	3	C		55		
HOLL	04	2150E	2151	2156	N 4	W18	.353		3.6	6D	SN	2	C		37		F
BIGB	04	2255	2257	2313	S26	E90	.999		11.7	18	SN	3	C	2257	30		
BIGB	04	2301	2309	2318	N16	W26	.559		3.0	17	SN	3	C	2309	30	.3	
HOLL	04	2303	2304	2323	N17	W24	.547		3.2	20	SN	2	C		26		
PALE	05	0124E	0125	0200	N 7	W20	.406		3.6	36D	SB	3	C		141		FDE
PALE	05	0204	0206	0224	N 7	W20	.406		3.6	20	SN	3	C		32		DE
RAMY	05	1153E	1155U	1211	S20	E46	.727		8.9	18D	SB	3	C		95		F
RAMY	05	1228	1228	1233	S20	E46	.727		9.0	5	SN	3	C		42		F
RAMY	05	1237	1238	1246	S20	E46	.727		9.0	9	SB	3	C		37		F
RAMY	05	1505	1506	1513	S14	W 6	.169		5.2	8	SB	3	C		32		
RAMY	05	1610	1612	1618	S20	E44	.705		9.0	8	SB	3	C		32		
MCMA	05	1640	1642	1654	N07	W34	.594	15802	3.1	14	SB		C	1642	40	.5	DH

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	05	1641	1643	1649	N 6	W28	.508		3.6	8	SB	3	C		42		
RAMY	05	1701	1704	1708	N14	E46	.765		9.2	7	SN	3	C		26		
RAMY	05	1725	1727	1731	N14	E45	.755		9.1	6	SN	3	C		24		
RAMY	05	1731	1732	1735	N14	E45	.755		9.1	4	SN	3	C		22		
BIGB	05	1907	1910	1913	N17	W35	.665		3.2	6	SN	3	C	1910	65	.8	
MCMA	05	1908	1910	1925	N07	W35	.607	15802	3.2	17	SB		C	1910	30	.4	DH
RAMY	05	1908	1910	1913	N 6	W30	.535		3.5	5	SB	3	C		38		
RAMY	05	2047	2047	2054	N 6	W31	.549		3.5	7	SN	3	C		23		
RAMY	05	2103	2104	2110	S20	E41	.670		9.0	7	SN	2	C		20		
RAMY	05	2107	2110	2119	N 6	W31	.549		3.6	12	SB	2	C		54		
BIGB	05	2107	2110	2117	N09	W29	.540		3.7	10	SN	1	C	2110	60	.9	E
RAMY	05	2115	2121	2123D	S20	E41	.670	15808	9.0	80	1B	2	C		437		FDE
BIGB	05	2119	2121	2149	S19	E42	.679	15808	9.0	30	1B	1	C	2121	180	2.5	
BIGB	05	2119	2121	2123	S15	E47	.730		9.4	4	SN	1	C	2121	130	2.0	E
BIGB	05	2149	2152	2159	S23	E45	.724		9.3	10	SN	1	C	2152	100	1.5	E
BIGB	05	2236	2252	2315	N16	E45	.764		9.3	39	SN	1	C	2252	70	1.0	E
BIGB	05	2302	2347	2347D	S19	E56	.828		10.2	45D	SN	2	P	2347	50	.9	
BIGB	05	2306	2307	2312	S23	E44	.713		9.3	6	SN	2	C	2307	50	1.0	
MANI	05	2308E	2308U	2317D	S22	E44	.710		9.3	9D	SN	2	C		40		
MITK	06	0435	0503	0543	N17	E37	.687	15807	9.0	68	1N		C	0503	270	3.7	E
MANI	06	0638E	0639	0644	N 8	W41	.686		3.2	6D	SN	3	C		15		
MONT	06	0800E	0805	0826	S19	E35	.592		9.0	26D	SF		C	0805	70		D
MONT	06	0822	0825	0858	N06	W34	.589		3.8	36	SF		C	0825	70		D
MONT	06	0917	0918	0923	N06	W34	.589		3.8	6	SN		C	0918	200		
RAMY	06	1156	1238	1243	S20	E34	.584		9.0	47	SN	3	C		28		
RAMY	06	1255	1301	1306	N 6	W40	.666		3.5	11	SB	3	C		71		H
RAMY	06	1347	1347	1352	S14	W18	.330		5.2	5	SN	3	C		20		
RAMY	06	1348	1353	1406	S20	E33	.571		9.1	18	SB	3	C		139		
RAMY	06	1432	1434	1457	N15	E34	.641		9.2	25	SB	3	C		48		
RAMY	06	1432	1432	1459	S20	E33	.571		9.1	27	SN	3	C		31		
RAMY	06	1508	1509	1522	S20	E33	.571		9.1	14	SN	3	C		20		
RAMY	06	1525	1528	1540	S20	E32	.558		9.0	15	SN	3	C		52		
RAMY	06	1544	1548	1550	S20	E32	.558		9.1	6	SN	3	C		23		
RAMY	06	1605	1620	1635	N 6	W41	.679	15802	3.6	30	2B	3	C		472		F H
RAMY	06	1605	1605	1613	N13	W34	.628		4.1	8	SN	3	C		26		
BIGB	06	1753	1755	1755D	S24	E34	.603		9.3	2D	SN	2	P	1755	20	.2	
RAMY	06	1810E	1812	1819	S20	E30	.532		9.0	9D	SN	3	C		39		
RAMY	06	1815	1817	1827	S20	E44	.705		10.1	12	SF	3	C		20		
BIGB	06	2005	2007	2035	S16	E29	.500		9.0	30	SN	3	C	2007	120	1.4	
RAMY	06	2012E	2012U	2014D	N14	E28	.566		8.9	2D	SN	2	C		43		F
BIGB	06	2037	2043	2050	S19	E90	.999		13.6	13	SN	3	C	2043	120	1.4	
BIGB	06	2037		2156	N12	E27	.538	15807	8.9	79	1N	2	P	2102	240	2.8	
BIGB	06	2048	2058	2104	S27	E72	.946		12.3	16	SN	2	P	2058	50		
BIGB	06	2049	2050	2104	S17	W16	.324		5.7	15	SN	2	C	2050	120	1.3	
BIGB	06	2056	2108	2147	N12	E34	.622		9.4	51	SN	2	C	2108	60	.7	
PALE	06	2059E	2101	2130D	N14	E31	.600	15807	9.2	31D	1B	3	C		217		DE
BIGB	06	2258	2306	2320	S20	E30	.532		9.2	22	SN	2	C	2306	40	.5	
MITK	07	0351	0354	0417	S19	E28	.500	15808	9.3	26	1F		C	0354	410	4.9	EH
MANI	07	0352E	0355	0406	S19	E27	.487		9.2	14D	SB	2	C		120		F
CATA	07	1010	1010	1015	S17	E75	.960	15813	13.0	5	1N	2	C	1010	84		
CATA	07	1110	1118	1122D	S21	E22	.435	15808	9.1	12D	1B	1	P	1118	393	4.5	
RAMY	07	1149E	1149U	1155	N35	E 9	.673		8.2	6D	SN	2	C		22		
RAMY	07	1158	1159U	1225	N 7	W53	.815		3.5	27	SN	3	C		34		
RAMY	07	1204	1204	1214	S22	E68	.922		12.6	10	SN	3	C		26		
RAMY	07	1250	1253	1300	S22	E67	.916		12.6	10	SN	3	C		36		
BIGB	07	1707	1709	1725	S20	E35	.596		10.3	18	SN	1	C	1709	75	.9	
RAMY	07	1708	1710	1717	S20	E32	.558		10.1	9	SB	2	C		85		
BIGB	07	1804	1812	1830	S18	E74	.955	15813	13.3	26	1N	1	C	1812	150		
HOLL	07	1843	1843	1848	N14	E19	.466		9.2	5	SN	3	C		21		
BIGB	07	1859	1902	1910	N14	W56	.859		3.6	11	SN	3	C	1902	50	.9	
HOLL	07	1900	1905	1909	S20	E18	.377		9.1	9	SN	3	C		55		F
BIGB	07	2058	2100	2111	N09	E31	.567		10.2	13	SN	2	C	2100	50	.9	G
BIGB	07	2135	2158	2244	S24	E17	.407		9.2	69	SN	1	C	2158	70	.8	E
BIGB	07	2210	2255	2337	N13	E18	.445		9.3	87	SN	1	C	2255	150	1.6	
BIGB	08	0029	0031	0031D	N20	E52	.844		11.9	2D	SN	2	P	0031	40	.6	
MANI	08	0205	0208	0347D	S18	E14	.307	15808	9.1	102D	1B	3	C		380		FDE
MITK	08	0210E		0335	S19	E19	.380	15812	9.5	85D	1N		C	0210	390	4.3	E
MITK	08	0409	0411	0446	N16	E09	.409		8.8	37	SN		C	0411			E
MONT	08	0800E	0800	0848	N12	E15	.403		9.5	48D	SN		C	0800	220		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MONT	08	0838	0845	0901	N16	E08	.404		9.0	23	SF		C	0845	50		E
MONT	08	0932	0935	0941	N26	W74	.980		2.8	9	SF		C	0935	40		D
MCMA	08	1405	1416	1438	N11	E03	.304	15807	8.8	33	SB		C	1416	100	1.1	E
MCMA	08	1410	1430	1455	S18	E58	.844	15813	12.9	45	SB		C	1430	70	1.5	EV
RAMY	08	1413	1414	1434	N11	E 4	.308		8.9	21	SB	3	C		72		F
RAMY	08	1421	1423	1447	S18	E57	.835		12.9	26	SB	3	C		62		F
MCMA	08	1446	1449	1510D	S18	E04	.211	15808	8.9	24D	SB		C	1449	125	1.3	E
RAMY	08	1448	1448	1502	S19	E 7	.246		9.1	14	SB	3	C		119		F
MCMA	08	1458	1530	1630D	N17	W63	.917	15802	3.9	92D	1B		C	1530	150	3.6	FLHV
RAMY	08	1505	1506	1509	N12	W59	.879		4.2	4	SN	3	C		16		
RAMY	08	1518	1524	1602	N12	W59	.879	15802	4.2	44	1B	3	C		241		U F
RAMY	08	1621	1621	1632	N13	E 6	.348		9.1	11	SN	3	C		28		F
MCMA	08	1646E	1650	1703D	S16	W79	.977	15814	2.8	17D	SN		C	1650			E
MCMA	08	1838E		1843	N15	W70	.954	15802	3.5	5D	SN		C	1838			D
BIGB	08	1905	1938	1948	S36	E74	.958		14.3	43	SN	2	C	1938	40		
BIGB	08	1955	2018	2032	S35	E73	.953		14.3	37	SN	3	P	2018	50		E
BIGB	08	2040	2105	2142	S36	E72	.949		14.3	62	SN	3	P	2105	60		E
BIGB	08	2057	2058	2059	S19	E18	.367		10.2	2	SN	3	C	2058	10	.1	D
BIGB	08	2107	2125	2142	N24	W84	.999		2.6	35	SN	3	C	2125	50		
BIGB	08	2111	2132	2137	N36	W88	1.001		2.3	26	SN	3	P	2132	50	.6	A
BIGB	08	2112	2132	2202	N13	E04	.340		9.2	5D	SN	3	C	2132	100	1.0	
BIGB	08	2113	2115	2135	S19	E16	.342		10.1	22	SN	3	C	2115	80	.9	
RAMY	08	2115	2115	2117D	S19	E15	.329		10.0	2D	SN	2	C		55		F
HOLL	08	2116	2116	2121	S19	E15	.329		10.0	5	SN	3	C		47		
BIGB	08	2159	2214	2214D	S36	E72	.949		14.3	15D	SN	3	C	2214	70		E
BIGB	08	2220	2318	2330	N14	E05	.359	15807	9.3	70	1N	3	C	2318	300	3.1	
BIGB	08	2347	2348	2355	S20	E57	.837		13.3	8	SN	3	C	2348	70	1.1	E
MANI	09	0639E	0642	0646D	S20	E 0	.233		9.3	7D	SN	3	C		100		F
MANI	09	0750	0757	0807D	N15	W 4	.373	15807	9.0	17D	1B	2	C		300		F
CATA	09	0810E	0810	0840D	N11	W05	.313	15807	9.0	30D	2B	2	P	0810	618	6.7	
CATA	09	0825	0825	0830	N05	W90	1.000	15802	2.6	5	1F	2	C	0825	56		
RAMY	09	1234	1235	1314	N13	W 8	.360		8.9	40	SN	3	C		42		F
RAMY	09	1234	1256	1314	N13	W 8	.360		8.9	40	SB	3	C		94		F
RAMY	09	1249	1250	1311	S19	E 6	.238		10.0	22	SB	3	C		46		F
RAMY	09	1339	1344	1427	N15	W 7	.385		9.0	48	SB	3	C		95		F
RAMY	09	1443	1444	1452	N15	W 7	.385		9.1	9	SB	3	C		30		F
RAMY	09	1542	1555	1603	N15	W 8	.390		9.1	21	SB	3	C		115		F
RAMY	09	1542	1546	1603	N15	W 8	.390		9.1	21	SN	3	C		40		F
HOLL	09	1554	1555	1604	N14	W10	.388		8.9	10	SB	3	C		75		F
BIGB	09	1618	1620	1633	N14	W17	.447		8.4	15	SN	1	C	1620	60	.6	E
HOLL	09	1619	1619	1640D	N14	W10	.388		8.9	21D	SB	3	C		89		F
RAMY	09	1619	1620	1640	N13	W 7	.354		9.2	21	SB	3	C		80		DE
RAMY	09	1621	1624	1627	S19	W 7	.245		9.2	6	SB	3	C		36		F
HOLL	09	1622	1623	1634	S19	W 7	.245		9.2	12	SB	3	C		34		F
HOLL	09	1711	1732	1743	N14	W11	.395		8.9	32	SB	3	C		64		F
RAMY	09	1719	1723	1725	N13	W 8	.360		9.1	6	SB	3	C		47		
RAMY	09	1726	1733	1737	N13	W 8	.360		9.1	11	SB	3	C		34		
BIGB	09	1727	1729	1741	S20	W10	.286		9.0	14	SN	1	C	1729	120	1.3	
RAMY	09	1728	1730	1741	S19	W 8	.254		9.1	13	SB	3	C		94		
HOLL	09	1728	1731	1743	S19	W 8	.254		9.1	15	SB	3	C		100		F
BIGB	09	1845	1846	1852	S21	W11	.308		9.0	7	SN	2	C	1846	60	.6	
RAMY	09	1846	1846	1855	S19	W 9	.263		9.1	9	SN	3	C		24		
BIGB	09	1852	1929	1942	S36	E60	.883		14.3	50	SN	1	C	1929	50	1.0	
BIGB	09	1900	1918	1918D	S24	E72	.945		15.2	18D	SN	2	P	1918	15		D
HOLL	09	1902	1908	2246D	N14	W13	.411		8.8	224D	SB	3	C		142		F
MCMA	09	1905		1945D	N13	W10	.373	15807	9.0	40D	SN		C	1930	120	1.4	EK
RAMY	09	1920	1920	1922	S20	E 3	.238		10.0	2	SN	3	C		46		
RAMY	09	1928	1932	1940	N13	W 9	.366		9.1	12	SB	3	C		71		
RAMY	09	1942	1942	1945	N13	W 9	.366		9.1	3	SN	3	C		22		
RAMY	09	1951	1951	2002	N13	W 9	.366		9.2	11	SN	3	C		31		
RAMY	09	2016	2022	2024	N13	W10	.373		9.1	8	SB	2	C		23		
RAMY	09	2032	2032	2038	N13	W10	.373		9.1	6	SB	2	C		23		F
BIGB	09	2138	2210	2231	N16	W15	.454		8.8	53	SF	3	C	2210	80	.9	
BIGB	09	2200	2205	2217	N17	W13	.451		8.9	17	SF	3	C	2205	70	.7	
BIGB	09	2235	2237	2240	N18	W14	.472		8.9	5	SF	3	C	2237	60	.6	
HOLL	09	2323	2323	2334	N14	W14	.419		8.9	11	SN	3	C		52		
RAMY	10	1154	1154	1205	S19	W18	.366		9.1	11	SN	3	C		32		F
RAMY	10	1155	1210	1223	S36	E49	.804		14.2	28	SN	3	C		21		F
RAMY	10	1241	1249	1330	N13	W19	.457		9.1	49	SB	3	C		140		DE F
MCMA	10	1400E		1500	N18	W17	.496	15807	9.3	60D	SN		C	1405	70	.8	E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	10	1430	1432	1435	N13	W20	.468		9.1	5	SB	3	C		40		F
MCMA	10	1430	1433	1442	N15	W22	.510	15807	9.0	12	SN		C	1433	30	.4	D
RAMY	10	1607	1609	1648	N13	W21	.479		9.1	41	SB	3	C		84		
HOLL	10	1626	1658	1947	N13	W24	.513	15807	8.9	201	1B	3	C		302		F
MCMA	10	1630E		1638D	S36	E41	.739	15816	13.8	8D	SF		C	1635	40	.6	E
RAMY	10	1631	1635	1637	S36	E47	.788		14.2	6	SB	3	C		22		
BIGB	10	1654	1658	1752	N17	W23	.541		9.0	58	SN	1	P	1658	50	.6	
RAMY	10	1656	1702	1719	N13	W21	.479		9.1	23	SB	3	C		63		
RAMY	10	1758	1759	1805	N13	W22	.490		9.1	7	SB	3	C		37		
BIGB	10	1800	1805	1812	S37	E39	.728		13.7	12	SN	1	C	1805	20	.3	
HOLL	10	1814	1814	1820	S21	W21	.421		9.2	6	SN	3	C		24		
MCMA	10	1853	1855	1910	N17	W24	.551	15807	9.0	17	SN		C	1855	50	.6	E
BIGB	10	1853	1905	1912	N17	E24	.551		12.6	19	SN	2	C	1905	30	.3	E
BIGB	10	2037	2039	2059	N13	W14	.407		9.8	22	SN	2	C	2039	130	1.4	
BIGB	10	2101	2103	2107	S37	E38	.720		13.7	6	SN	3	C	2103	30	.3	
MITK	11	0311	0313	0326	N17	W31	.625		8.8	15	SN		C	0313			
MITK	11	0601	0606	0635	S24	W25	.494		9.4	34	SN		C	0606			
MANI	11	0646E	0646U	0650D	N23	W28	.647		9.2	4D	SN	3	V		15		
MANI	11	0646E	0646U	0650D	N13	W28	.560		9.2	4D	SN	3	C		15		
MANI	11	0813E	0814	0835D	N14	W31	.602		9.0	22D	SN	3	C		30		F
MANI	11	0857E	0857U	0908D	N15	W24	.532		9.6	11D	SN	3	C		60		F
RAMY	11	1206	1207	1213	S20	W19	.387		10.1	7	SN	3	C		25		
CATA	11	1225E	1250	1250D	N12	W33	.612	15807	9.0	25D	1B	2	P	1250	224	2.9	
RAMY	11	1225	1233	1349	N13	W32	.607	15807	9.1	84	1B	3	C		243		DE F
RAMY	11	1438	1528	1604	N16	W34	.650		9.1	86	SB	3	C		106		
RAMY	11	1438	1440	1456	S18	E18	.357		13.0	18	SN	3	C		29		
MCMA	11	1507E	1523	1616D	N16	W28	.585	15807	9.5	69D	1N		C	1523	250	3.3	F
HOLL	11	1509	1529	1555	N13	W36	.653		8.9	46	SB	3	C		91		F H
HOLL	11	1509	1510	1555	N13	W36	.653		8.9	46	SN	3	C		65		F H
RAMY	11	1712	1712	1714	S19	W34	.578		9.2	2	SB	3	C		20		
RAMY	11	1733	1734	1739	N16	W35	.661		9.1	6	SB	3	C		33		
MCMA	11	1912E		1913D	S22	W34	.591	15808	9.3	10	SN		P	1913	100	1.5	E
HOLL	11	2036	2044	2057	S33	E30	.620		14.1	21	SB	3	C		73		F
MITK	12	0000		0250	N17	W34	.658	15807	9.5	170	2N		C	0018	420	5.8	EF
MANI	12	0005	0017	0110	N15	W37	.677	15807	9.2	65	1B	3	C		200		FDE
MANI	12	0012E	0018	0105D	N15	W36	.666	15807	9.3	53D	1B	3	C		170		FDE
PALE	12	0018E	0020U	0130D	N16	W36	.672		9.3	72D	SB	1	C		100		DE
MITK	12	0211	0217	0245	S35	E27	.611		14.1	34	SB		C	0217			D
MANI	12	0213	0215	0240	S35	E27	.611		14.1	27	SB	3	C		50		
MITK	12	0238	0243	0301	S25	W37	.640	15812	9.3	23	1F		C	0243	170	2.2	E
MITK	12	0546	0549	0611	N16	W38	.694	15807	9.4	25	1F		C	0549	210	3.0	E
MANI	12	0548	0555	0600	N15	W38	.688		9.4	12	SB	3	C		100		
BIGB	12	1613	1618	1622	S16	E56	.824		16.9	9	SN	1	C	1618	50	.9	
HOLL	12	1739	1740	1753	N13	W51	.813		8.9	14	SN	3	C		18		
BIGB	12	1814	1837	1915	N19	W32	.652		10.4	61	SF	2	C	1837	40	.5	
BIGB	12	1820	1825	1833	N16	W34	.651		10.2	13	SF	2	C	1825	10	.1	D
RAMY	12	1948E	1951U	1951D	S36	E17	.548		14.1	3D	SB	2	C		164		FDE
HOLL	12	1948	1956	2031	S34	E15	.510	15816	14.0	43	1B	3	C		226		U
RAMY	12	1948E	1948U	1951D	N19	E64	.928		17.6	3D	SB	2	C		33		
MCMA	12	2010E		2017D	S34	E16	.516	15816	14.0	7D	SB		P	2012	50	.6	D
BIGB	12	2025	2043	2101	S32	E35	.660		15.5	36	SN	3	C	2043	80	1.0	
HOLL	12	2208E	2233	2254	S37	E13	.538		13.9	46D	SB	2	C		132		U F
HOLL	12	2208E	2215U	2237	S14	E 0	.127		12.9	29D	SN	2	C		45		
HOLL	12	2208E	2219	2254	S37	E13	.538		13.9	46D	SN	2	C		52		U F
HOLL	12	2214E	2214U	2235	N21	E39	.734		15.9	21D	SN	2	C		18		
HOLL	12	2221	2226	2235	S19	W40	.653		9.9	14	SN	2	C		34		
HOLL	12	2225	2228	2234	N16	W50	.813		9.2	9	SN	2	C		15		
BIGB	12	2355U	0013U	0013D	N15	E35	.655	15819	15.6	18D	1N	2	P	0013	260	3.3	
BIGB	13	0018	0020	0036	N13	W64	.917	15807	8.2	18	1N	3	C	0020	110	2.6	
MANI	13	0222E	0225	0234D	S35	E17	.534		14.4	12D	SB	3	C		60		
MITK	13	0445	0453	0506	S35	E12	.505	15816	14.1	21	1B		C	0453	210	2.5	E
KAND	13	1038E	1038	1046	N22	E22	.587		15.1	8D	SN		C		52		
KAND	13	1138E	1141	1150	N19	E54	.858		17.5	12D	SN		C		42		
KAND	13	1138	1157	1157D	N19	E90	1.001		20.2	19D	SN		C				
KAND	13	1150	1155	1204	N24	E90	1.001		20.2	14	SN		C				
KAND	13	1206	1211	1225	N19	E90	1.001		20.3	19	SN		C				
KAND	13	1230	1233	1241	N19	E54	.858		17.6	11	SN		C		73		
KAND	13	1257	1323	1323D	N22	E21	.578		15.1	26D	SF		C				
KAND	13	1316	1318	1322	N15	W60	.893		9.1	6	SN		C		62		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	13	1614	1615	1625	N15	E55	.854		17.8	11	SN	1	C	1615	30	3.0	
BIGB	13	1708	1711	1725	N13	E60	.889		18.2	17	SN	1	C	1711	80	1.6	
HOLL	13	1709	1712	1729	N14	W58	.876		9.4	20	SB	3	C		101		F
BIGB	13	1715	1718	1719	N16	E74	.973		19.3	4	SN	1	C	1718	20		
BIGB	13	1715	1723	1741	N16	E89	1.000	15830	20.4	26	1N	2	C	1723	80	.8	
BIGB	13	1843	1852	1900	S18	E12	.280		14.7	17	SN	2	C	1852	80	.8	
HOLL	13	1847	1850	1905	S18	W10	.257		13.0	18	SN	4	C		48		F
RAMY	13	1849	1850	1856	S18	W10	.257		13.0	7	SN	2	C		44		F
HOLL	13	1849	1849	1903	N14	W59	.884		9.4	14	SB	4	C		14		
BIGB	13	1903	1908	1930	N13	W60	.889		9.3	27	SN	3	C	1908	60	1.2	
RAMY	13	1905	1908	1923	N15	W55	.854		9.7	18	SB	2	C		77		
HOLL	13	1907	1909	1918	N14	W59	.884		9.4	11	SB	4	C		22		F
BIGB	13	1922	1927	1937	N16	E90	1.001	15830	20.6	15	1N	3	C	1927	80		
BIGB	13	1923	1924	1925	N17	W65	.930		8.9	2	SN	3	C	1924	10	.2	DC
HOLL	13	1934	1955	2010	S18	W11	.268		13.0	36	SN	4	C		30		F
RAMY	13	1937	1938	1945	S18	W10	.257		13.1	8	SN	2	C		35		
RAMY	13	1956	1958	2008	N18	E53	.847		17.8	12	SB	2	C		91		
BIGB	13	1956	1958	2015	N18	W50	.821		10.1	19	SN	3	C	1958	80	1.4	
HOLL	13	1957	1958	2007	N17	E55	.860		18.0	10	SB	4	C		62		DE
BIGB	13	2008	2011	2013	S26	E90	.999		20.6	5	SN	3	C	2011	10		
BIGB	13	2014	2016	2018	N14	E90	1.000		20.6	4	SN	3	C	2016	40		
BIGB	13	2042	2051	2108	N14	W62	.906		9.2	26	SN	3	C	2051	60	1.3	E
HOLL	13	2043	2051	2104	N16	W63	.916		9.1	21	SB	4	C		48		F
BIGB	13	2049	2058	2111	N21	E55	.872		18.0	22	SN	3	C	2058	40	.7	
HOLL	13	2058	2059	2106	N17	E55	.860		18.0	8	SB	4	C		29		
HOLL	13	2115	2115	2132	N21	E26	.611		15.8	17	SN	4	C		21		
HOLL	13	2125	2128	2137	N17	E54	.852		17.9	12	SB	4	C		109		U F
BIGB	13	2151	2158	2215	N16	E90	1.001		20.7	24	SN	3	C	2158	40		
BIGB	13	2153	2200	2202	N15	W78	.986		8.1	9	SN	3	C	2200	50		
BIGB	13	2155	2158	2206	N12	E90	1.000		20.7	11	SN	3	C	2158	40		
BIGB	13	2207	2211	2223	S25	E90	.999		20.7	16	SN	3	C	2211	40		
BIGB	13	2209	2221	2248	N15	W65	.927		9.0	39	SN	3	C	2221	40	.9	
BIGB	13	2249	2254	2300	S25	E90	.999		20.7	11	SN	3	C	2254	40		
BIGB	13	2338	2343	2350	S25	E90	.999		20.7	12	SN	3	C	2343	20		
HOLL	14	0018	0020	0028D	N16	W65	.929		9.1	100	SB	3	C		80		U F
MANI	14	0020	0022	0030	N12	W62	.902		9.4	10	SB	3	C		100		F
MANI	14	0020	0027	0030	N12	W62	.902		9.4	10	SB	3	C		100		F
MANI	14	0106	0109	0113	N17	E82	.995		20.2	7	SB	2	C		60		
MANI	14	0107E	0108	0112	N16	E80	.991		20.0	50	SB	3	C		80		
MANI	14	0653	0655	0710	N17	E85	.999		20.7	17	SB	2	C		50		
KAND	14	0802E	0807	0818	N17	E75	.977		20.0	160	SN		C				
KAND	14	0808	0820	0820D	N15	W70	.955		9.1	120	SN		C				
MANI	14	0819	0823	0840	N 3	E55	.827		18.5	21	SN	2	C		30		F
KAND	14	0820	0824	0901	N04	E54	.819		18.4	41	SN		C		42		
KAND	14	0845	0850	0901	N16	E90	1.001		21.1	16	SN		C				
HOLL	14	1548	1604	1656	N15	W75	.976		9.0	68	SB	3	C		0		FDE
BIGB	14	1709	1712	1719	N22	E43	.777		17.9	10	SN	2	C	1712	40	.6	
BIGB	14	1747	1800	1815	N21	E44	.781		18.0	28	SN	2	C	1800	90	1.3	
BIGB	14	1810	1814	1818	N16	E38	.694		17.6	8	SF	2	C	1814	10	.1	
BIGB	14	1831	1833	1840	N13	E65	.924		19.6	9	SN	2	C	1833	50	.9	
BIGB	14	1955	2014	2053	N16	E41	.726		17.9	58	SN	2	C	2014	140	1.5	
BIGB	14	2118	2120	2123	N25	E06	.535		15.3	5	SF	3	C	2120	50	.5	
BIGB	14	2143	2148	2152	N30	E80	.996		20.9	9	SF	3	C	2148	10		D
BIGB	14	2147	2150	2205	N16	E70	.956		20.2	18	SF	2	C	2150	40		
BIGB	14	2211	2222	2240	N16	E69	.951	15830	20.1	29	1N	3	C	2222	130		
BIGB	14	2222	2233	2243	N13	E75	.975		20.6	21	SF	3	C	2233	10		D
HOLL	14	2226	2235	2252	N16	E65	.929		19.8	26	SN	3	C		24		
BIGB	14	2226	2230	2236	N30	E80	.996		20.9	10	SF	3	C	2230	10		D
MANI	15	0118	0123	0129	N17	E70	.957		20.3	11	SB	2	C		90		
MANI	15	0135	0140	0150	S19	W26	.470		13.1	15	SB	2	C		50		
MANI	15	0141	0143	0149	N16	E34	.652		17.6	8	SB	2	C		30		
MANI	15	0246	0248	0303	N16	E68	.946		20.2	17	SB	2	C		80		
CATA	15	0725E	0725	0725D	N10	W90	1.000	15807	8.6		1N	2	P	0725	112		A
CATA	15	0845	0845	0850	N18	E65	.932	15830	20.2	5	1N	2	C	0845	84		
CATA	15	0955	0955	1000D	N23	E01	.498		15.5	50	SB	2	P	0955	84	1.0	H
KAND	15	1046	1057	1057D	N15	W90	1.000		8.7	110	SF		C				
KAND	15	1118	1128	1138	N15	W90	1.000		8.7	20	SF		C				
BIGB	15	1558	1600	1603	N02	E39	.642		18.6	5	SN	1	C	1600	20	.7	
BIGB	15	1713	1715	1723	N16	E50	.814		19.5	10	SN	2	C	1715	80	.9	
BIGB	15	1807	1809	1822	N10	E59	.876		20.2	15	SN	3	C	1809	10	.1	D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	15	2016	2020	2024	N14	W90	1.000	15807	9.1	8	1N	2	C	2020	60		
BIGB	15	2133	2137	2202	N04	E60	.873		20.4	29	SN	3	C	2137	10	.2	D
BIGB	15	2149	2154	2154D	N14	E67	.938		20.9	5D	SN	3	C	2154	20		
BIGB	15	2152	2157	2157D	S26	E65	.903		20.8	5D	SN	3	C	2157	60	1.1	
MITK	16	0144	0152	0319	N16	E59	.889	15830	20.5	95	3B		C	0152	930	20.2	FH
PALE	16	0145	0152	0248	N15	E48	.792	15830	19.7	63	2B	3	C		653		U F
MITK	16	0314	0317	0344	N16	E59	.889	15830	20.6	30	2B		C	0317	320	6.7	F
MITK	16	0357	0405	0413	S20	W90	.999	15812	9.4	16	1F		C	0405	110		
MITK	16	0552	0557	0613	N15	W90	1.000	15807	9.5	21	1N		C	0557	130		EG
MCMA	16	1624	1630	1715	N13	E51	.813	15830	20.5	51	SB		C	1630	60	1.1	E
MCMA	16	1718	1755	1840	N19	E10	.465	15823	17.5	82	SB		C	1755	100	1.2	
MCMA	16	1718	1725	1840	N19	E10	.465	15830	17.5	82	SB		C	1725	100	1.2	
MCMA	16	1718	1742	1840	N19	E10	.465	15823	17.5	82	SB		C	1742	125	1.5	EK
MCMA	16	1750	1755	1810	N13	E36	.655	15830	19.4	20	SN		C	1755	75	1.0	EH
BIGB	16	1750	1753	1814	N12	E37	.661		19.5	24	SN	2	C	1753	90	1.2	
BIGB	16	1750	1756	1817	N19	E11	.470		17.6	27	SN	2	C	1756	70	.8	
BIGB	16	1758	1759	1815	N19	E46	.790		20.2	17	SN	2	C	1759	20	.3	E
BIGB	16	1808	1814	1817	N14	E41	.716		19.8	9	SN	2	C	1814	20	.3	E
BIGB	16	1810	1812	1821	N18	E37	.697		19.5	11	SN	2	C	1812	20	.3	E
MCMA	16	1852	1901	1940	N19	E10	.465	15823	17.5	48	SB		C	1901	60	.7	D
BIGB	16	1932	1937	1944	N18	E36	.687		19.5	12	SN	2	C	1937	20	.3	E
MCMA	16	1951	1954	2013D	N19	E10	.465	15823	17.6	22D	SN		C	1954	50	.6	E
BIGB	16	1953	2001	2008	N19	E11	.470		17.7	15	SN	2	C	2001	10	.1	D
MANI	16	2307E	2307U	2318D	N20	E11	.484		17.8	11D	SN	2	V		30		
MITK	17	0004	0007	0041	N18	E08	.440		17.6	37	SF		C	0007			DZ
MANI	17	0011E	0015	0050D	N20	E10	.479		17.8	39D	SB	3	C		40		F
MANI	17	0011E	0024	0050D	N20	E10	.479		17.8	39D	SN	3	C		80		F
MANI	17	0805E	0809U	0814D	N18	E 4	.426		17.6	9D	SN	2	C		40		
MANI	17	0809E	0809U	0814D	N17	E30	.617		19.6	5D	SN	2	C		30		
RAMY	17	1155	1156	1158	N18	E 4	.426		17.8	3	SN	2	C		31		
RAMY	17	1201	1204	1209	N16	E33	.641		20.0	8	SN	2	C		35		
RAMY	17	1214	1528	1618	N16	E31	.620		19.8	244	SB	3	C		183		F
RAMY	17	1219	1220	1224	N18	E 4	.426		17.8	5	SB	2	C		44		
RAMY	17	1333	1333	1348	S27	E43	.713		20.8	15	SN	3	C		18		
MCMA	17	1343	1344	1415	N14	E42	.727	15830	20.7	32	SN		C	1344	40	.6	E
RAMY	17	1415	1417	1434	S27	E43	.713		20.8	19	SN	3	C		20		
RAMY	17	1430	1435	1447	N 7	W 3	.246		17.4	17	SF	3	C		22		
RAMY	17	1431	1443	1606	N18	E 2	.422	15823	17.8	95	1B	3	C		253		F
MCMA	17	1436	1439	1505	N18	E01	.422	15823	17.7	29	SB		C	1439	120	1.3	ET
MCMA	17	1545	1555	1610	N18	E01	.422	15823	17.7	25	SN		C	1555	75	.8	E
MCMA	17	1706		1735D	N18	E01	.422	15823	17.8	29D	SN		C	1720	110	1.2	E
HOLL	17	1710E	1711	1744	N16	E27	.576		19.7	34D	SN	2	C		39		F
HOLL	17	1710E	1733	1744	N16	E27	.576		19.7	34D	SF	2	C		38		F
RAMY	17	1720	1723	1757	N16	E22	.524		19.4	37	SB	3	C		31		
MCMA	17	1721	1726	1742	N17	E25	.565	15830	19.6	21	SN		C	1726	60	.7	E
BIGB	17	1722	1729	1738	N19	E23	.565		19.4	16	SN	1	C	1729	10	.1	D
MCMA	17	1740	1743	1800	N18	E00	.421	15823	17.7	20	SN		C	1743	110	1.2	E
RAMY	17	1742	1745	1747	N18	W 0	.421		17.7	5	SB	3	C		23		
HOLL	17	1742	1743	1745	N18	E 4	.426		18.0	3	SB	3	C		47		U
HOLL	17	1751	1757	1800	N16	E27	.576		19.8	9	SN	3	C		53		F
BIGB	17	1805	1806	1810	N07	W04	.250		17.5	5	SN	1	C	1806	30	.3	
RAMY	17	1805	1807	1821	N 7	W 6	.261		17.3	16	SN	3	C		47		
MCMA	17	1805	1808	1813	N07	W04	.250	15836	17.5	8	SN		C	1808	30	.3	D
HOLL	17	1825	1910	1915D	N16	E28	.587	15830	19.9	50D	1B	3	V		262		F
MCMA	17	1835	1845	1900D	N18	E00	.421	15823	17.8	25D	SN		C	1845	100	1.3	E
MCMA	17	1842	1850	1903	N17	E25	.565	15830	19.7	21	SN		C	1850	40	.5	E
RAMY	17	1843	1850	1919D	N16	E22	.524		19.4	36D	SB	3	C		53		
BIGB	17	1844	1848	1859	N18	E23	.555		19.5	15	SN	2	C	1848	20	.2	E
MCMA	17	1900	1905	1915D	N18	W01	.422	15823	17.7	15D	SN		C	1905	125	1.4	E
BIGB	17	1905	1908	1921	N17	E18	.497		19.1	16	SN	3	C	1908	90	1.0	
MCMA	17	1905	1908	1925D	N15	E28	.579	15830	19.9	20D	SN		C	1908	100	1.3	E
HOLL	17	1909E	1910	1952	N16	E28	.587	15830	19.9	43D	1B	3	C		202		F
MCMA	17	1915	1916	1924	N18	W01	.422	15823	17.7	9	SN		C	1916	60	.7	E
MCMA	17	1931	1932	1940	N15	E28	.579	15830	19.9	9	SN		C	1932	100	1.3	
MCMA	17	1945	1954	2000	N18	W01	.422	15823	17.7	15	SN		C	1954	60	.7	E
BIGB	17	2014	2030	2045	N17	W04	.410		17.5	31	SN	2	C	2030	80	.8	
HOLL	17	2029	2032	2217	N17	W 2	.407	15823	17.7	108	1B	3	C		196		F
HOLL	17	2030	2037	2040	N16	E27	.576	15830	19.9	10	1N	3	C		50		
BIGB	17	2110	2125	2140	N17	W04	.410		17.6	30	SN	1	P	2125	70	.7	
HOLL	17	2126	2130	2313	N16	E26	.566		19.8	107	SB	3	C		116		DE

Hα SOLAR FLARES

FEBRUARY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION — MIN.	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	17	2126	2128	2128D	N18	E20	.527		19.4	2D	SN	1	P	2128	140	1.5	
HOLL	17	2127	2130	2153	N 1	E 6	.172		18.3	26	SN	3	C		58		
BIGB	17	2215	2224	2230	N18	E19	.518		19.4	15	SN	1	C	2224	40	.4	
HOLL	17	2218	2219	2239	N 1	E 5	.163		18.3	21	SB	3	C		66		
BIGB	17	2218	2219	2225	N02	E07	.196		18.5	7	SN	1	C	2219	40	.4	
BIGB	17	2230	2241	2306	N18	E26	.584		19.9	36	SN	1	C	2241	40	.4	E
BIGB	17	2301	2303	2306	N18	E19	.518		19.4	5	SN	1	C	2303	30	.3	
HOLL	17	2304	2306	2319	S27	E39	.670		20.9	15	SN	3	C		26		
MITK	18	0142	0143	0149	N18	W07	.436		17.5	7	SN		C	0143			E
MITK	18	0637	0644	0725	N19	E16	.505	15830	19.5	48	1B		C	0644	360	4.3	F
MANI	18	0649E	0649U	0656D	N16	E13	.443		19.3	7D	SB	1	C		150		F
CATA	18	0705E	0710	0720D	N18	E17	.501	15830	19.6	15D	1B	2	P	0710	168	2.0	
CATA	18	0940	0950	1030D	S31	W38	.681	15818	15.6	50D	1N	2	P	0950	168	2.3	
CATA	18	1200E	1215	1245D	N14	W05	.367		18.1	45D	SN	2	P	1215	168	1.8	
HOLL	18	1527	1543	1550	N 1	W 4	.154		18.3	23	SN	3	C		49		
HOLL	18	1538	1539	1623	N17	W12	.450		17.8	45	SB	3	C		130		F
HOLL	18	1615	1629	1800	N16	E16	.468	15830	19.9	105	1B	3	C		330		U F
HOLL	18	1615	1642	1800	N16	E16	.468	15830	19.9	105	2B	3	C		576		U F
BIGB	18	1620	1639U	1655	N10	E20	.441		20.2	35	SN	1	C	1639	180	.2	
MCMA	18	1625E		1647D	N12	E20	.461	15830	20.2	22D	1B		C	1630	200	2.3	E
MCMA	18	1628	1642	1647D	N18	W16	.493	15823	17.5	19D	1B		C	1642	200	2.4	EX
HOLL	18	1636	1651	1809	N17	W13	.457	15823	17.7	93	2B	3	C		494		U F
HOLL	18	1636	1638	1809	N17	W13	.457	15823	17.7	93	1B	3	C		290		U F
BIGB	18	1636	1642	1704	N27	W14	.596	15823	17.6	28	1B	1	C	1642	230	2.4	
BIGB	18	1639	1643	1656	N19	E19	.530		20.1	17	SN	1	C	1643	60	.6	
MCMA	18	1641	1642	1647D	N19	E20	.538	15830	20.2	6D	SN		C	1642	110	1.3	E
HOLL	18	1652	1705	1731	N 6	W17	.364		17.4	39	SB	3	C		50		F
BIGB	18	1807	1732	1747	N18	W26	.585	15823	16.8	***	1N	2	C	1732	240	2.7	
HOLL	18	1831	1840	1856	N16	E15	.459		19.9	25	SB	3	C		43		F
BIGB	18	1837	1847	1854	N18	E11	.457		19.6	17	SN	1	C	1847	50	.5	E
BIGB	18	1838	1852	1906	N18	W15	.485		17.7	28	SN	3	C	1852	40	.4	
HOLL	18	1842	1842	1856	N17	W16	.480		17.6	14	SB	3	C		30		F
HOLL	18	1900	1904	1913	N16	E14	.451		19.8	13	SB	3	C		25		F
BIGB	18	1928	2015	2052	N18	E10	.451		19.6	84	SN	3	P	2015	160	1.7	
HOLL	18	1928	1929	1937	N16	E14	.451		19.9	9	SN	3	C		44		F
HOLL	18	1947	1956	2044	N16	E14	.451		19.9	57	SB	3	C		108		FDE
HOLL	18	1954	1954	2006	N17	W16	.480		17.6	12	SB	3	C		29		F
BIGB	18	1954	1957	2007	N18	W17	.501		17.6	13	SN	3	C	1957	50	.5	
BIGB	18	2055	2122	2158	N17	E18	.497		20.2	63	SN	3	C	2122	50	.8	B
HOLL	18	2056	2057	2105	N16	E13	.443		19.8	9	SB	3	C		29		F
BIGB	18	2103	2112	2131	S15	E50	.762		22.6	28	SN	3	C	2112	40	.4	E
BIGB	18	2115	2117	2123	N15	E15	.446		20.0	8	SN	3	C	2117	50	.5	
HOLL	18	2115	2122	2142	N17	W17	.489		17.6	27	SB	3	C		94		U F
HOLL	18	2119	2122	2124	N16	E13	.443		19.9	5	SB	3	C		22		F
BIGB	18	2132	2137	2139	N17	E08	.426		19.5	7	SN	3	C	2137	10	.7	D
HOLL	18	2143	2145	2146	N16	E13	.443		19.9	3	SN	3	C		20		
BIGB	18	2156	2209	2241	N18	E10	.451	15830	19.7	45	1N	3	C	2209	180	2.2	
HOLL	18	2156	2156	2201	N16	E13	.443		19.9	5	SB	3	C		35		
BIGB	18	2203	2210	2245U	N18	W21	.536	15823	17.3	42U	1N	3	C	2210	250	4.7	E
HOLL	18	2205	2209	2244	N16	E13	.443		19.9	39	SB	3	C		185		U F
HOLL	18	2206	2211	2246	N17	W18	.497	15823	17.6	40	1B	3	C		232		U F
HOLL	18	2206	2216	2246	N17	W18	.497		17.6	40	SB	3	C		189		U F
BIGB	18	2324	2342	0001	N18	W19	.518		17.6	37	SN	3	C	2342	80	.8	
HOLL	18	2329	2339	0013	N17	W18	.497		17.6	44	SB	3	C		97		U F
MANI	18	2335	2339	0006D	N19	W20	.538	15823	17.5	31D	1B	3	V		200		F
MITK	18	2336E		2344D	N18	W19	.518	15823	17.6	8D	SB		P	2340			EZ
BIGB	18	2342	2353	2353D	N17	E14	.464		20.0	11D	SN	1	C	2353	70	.7	
HOLL	18	2343	2348	0018D	N16	E12	.436		19.9	35D	SB	2	C		131		U F
MANI	18	2350	2350	0006D	N18	E10	.451		19.7	16D	SB	3	V		120		F
BIGB	18	2352	2354	2358	N16	W18	.486		17.6	6	SN	1	C	2354	10	.2	D
MITK	18	2356E		2416	N18	W19	.518	15823	17.6	20D	SN		C	2404			EZ
MITK	18	2356E		2424	N18	E13	.470		20.0	28D	SN		C	2359			E
MANI	19	0357E	0357U	0357D	N19	W21	.548		17.6		SB	2	V		100		F
MCMA	19	1500	1533	1720D	N19	W28	.614	15823	17.5	140D	1B		C	1533	200	2.7	EV
HOLL	19	1524	1534	1637	N17	W27	.586	15823	17.6	73	1B	2	C		235		U F
HOLL	19	1524	1526	1637	N17	W27	.586		17.6	73	SB	2	C		117		U F
RAMY	19	1525E	1527	1649	N19	W25	.585	15823	17.8	84D	1B	3	C		230		FDE
RAMY	19	1602	1603	1609	N15	E 3	.378		19.9	7	SB	3	C		58		
RAMY	19	1634	1636	1659	N15	E 3	.378		19.9	25	SN	2	C		22		
RAMY	19	1755	1814	1854	N15	E 2	.376	15830	19.9	59	1B	3	C		491		F

Hα SOLAR FLARES

FEBRUARY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	19	1758	1820	19590	N20	E02	.455	15830	19.9	1210	2B		C	1820	500	5.6	FILN
HOLL	19	1805	1814	1906	N16	E 2	.392	15830	19.9	61	1B	3	C		466		U F
MCMA	19	1959	2006	20140	N20	E04	.458	15830	20.1	150	SN		C	2006	80	.9	E
HOLL	19	2002	2004	2046	N16	E 1	.391		19.9	44	SB	3	C		65		FDE
RAMY	19	2018E	2018U	20350	N15	E 1	.375		19.9	170	SB	2	C		51		F
HOLL	19	2026	2034	2054	S16	E40	.645		22.9	28	SB	3	C		119		F
RAMY	19	2033	2035	20350	S17	E42	.672		23.0	20	SB	2	C		29		
HOLL	19	2138	2140	2144	N16	W 0	.390		19.9	6	SB	3	C		31		F
HOLL	19	2207	2211	2220	N16	W 1	.391		19.8	13	SB	3	C		22		
HOLL	19	2221	2225	2240	N16	W 1	.391		19.9	19	SB	3	C		145		DE H
HOLL	19	2329	2339	0013	N17	W18	.498		18.6	44	SB	3	C		97		U F
HOLL	19	2343	2348	0018D	N16	E12	.436		20.9	35D	SB	2	C		131		U F
MITK	20	0447	0451	0515	N18	W07	.438	15830	19.7	28	1F		C	0451	190	2.2	E
CATA	20	0750E	0750	0805	N16	W15	.460	15830	19.2	15D	1B	2	P	0750	196	2.2	
RAMY	20	1214	1217	1220	N20	W39	.730		17.6	6	SN	3	C		20		
RAMY	20	1230	1232	1235D	N17	W17	.490		19.2	5D	SB	3	V		58		
RAMY	20	1246	1247	1251	N17	W16	.481		19.3	5	SB	3	C		44		F
RAMY	20	1257	1302	1305	N17	W12	.451		19.6	8	SB	3	C		34		F
RAMY	20	1313	1322	1323D	N17	W12	.451		19.7	4D	SB	3	V		57		F
RAMY	20	1344	1344	1405	N21	E27	.623		22.6	21	SB	3	C		25		F
RAMY	20	1349	1351	1416D	N20	W39	.730		17.7	27D	SN	3	V		57		F
MCMA	20	1350E		1510	N19	W41	.744	15823	17.5	80D	1B		P	1439	150	2.3	EL
HOLL	20	1604	1618	1714	N16	W10	.423	15830	19.9	70	1B	3	C		223		FDE
HOLL	20	1604	1649	1714	N16	W10	.423	15830	19.9	70	1B	3	C		305		FDE
MCMA	20	1610	1615	1705	N15	W04	.380	15830	20.4	55	1B		C	1615	180	2.0	E
HOLL	20	1638	1650	1659	N17	W41	.733		17.6	21	SB	3	C		33		F
HOLL	20	1643	1643	1647	N22	W77	.987		14.9	4	SN	3	C		0		F
MCMA	20	1644	1649	1705	N16	W20	.505	15830	19.2	21	1B		C	1649	170	2.0	DL
MCMA	20	1708	1710	1715	N16	W20	.505	15830	19.2	7	SN		C	1710	30	.4	D
MCMA	20	1716	1721	1746	N20	W16	.519	15830	19.5	30	SN		C	1721	25	.3	D
MCMA	20	1721	1746	1845	N03	W32	.552	15828	18.3	84	1B		C	1746	220	2.7	EU
RAMY	20	1724	1744	1903D	N 1	W33	.558	15828	18.3	99D	2B	3	C		595		U
HOLL	20	1729	1737	1833	N 3	W32	.552	15828	18.3	64	1B	3	C		275		U
MCMA	20	1745	1808	20100	N20	W25	.595	15830	18.9	145D	2B		C	1808	600	8.0	IL
RAMY	20	1750	1756	1757	N17	W11	.444		19.9	7	SB	3	C		29		F
RAMY	20	1759	1804	1903D	N16	W20	.505	15830	19.2	64D	1B	3	C		353		U F
RAMY	20	1759	1802	1803D	N17	W11	.444	15830	19.9	4D	1B	3	V		281		F
HOLL	20	1800E	1804	1932	N16	W20	.505	15830	19.3	92D	1B	3	C		336		U F
HOLL	20	1802	1804	1810	N17	W42	.743		17.6	8	SN	3	C		19		
MCMA	20	2003	2009	20100	N16	W22	.525	15830	19.2	70	SN		C	2009	35	.4	D
HOLL	20	2007	2010	2013	N16	W15	.460		19.7	6	SB	3	C		32		UDE
MANI	20	2348	2350	2354	N18	W20	.528		19.5	6	SN	3	V		150	1.8	
MITK	21	0045	0049	0117	N17	W24	.556		19.2	32	SF		C	0049			E
MITK	21	0228	0237	0253	N19	W22	.558		19.5	25	SF		C	0237			D
RAMY	21	1334	1335	1344	N17	W31	.629		19.2	10	SB	3	C		35		
RAMY	21	1418E	1421U	14290	N17	W28	.597	15830	19.5	110	1B	3	V		311		U F
RAMY	21	1442	1443	1454	N17	W32	.639		19.2	12	SB	3	C		25		
RAMY	21	1555E	1557	1613	N17	W32	.639		19.3	18D	SB	3	C		60		
RAMY	21	1627	1629	1651	N18	W34	.667		19.1	24	SB	3	C		68		F
RAMY	21	1627	1634	1651	N18	W34	.667		19.1	24	SB	3	C		111		F
RAMY	21	1723	1726	1732D	N15	W30	.602		19.5	9D	SB	3	C		34		
RAMY	21	1853E	1905	19100	N15	W30	.602		19.5	17D	SB	3	C		41		
RAMY	21	1939	1953	2128	N15	W31	.613		19.5	109	SB	3	C		126		F
RAMY	21	2052	2053	2112	S21	W49	.758		18.2	20	SN	3	C		28		
RAMY	21	2113	2126	2132	N 1	W48	.750		18.3	19	SN	3	C		16		
MANI	21	2348	2350	2354	N18	W20	.528		20.5	6	SB	3	V		150		
MANI	22	0005E	0005U	0011	N17	W34	.661	15830	19.5	6D	1B	3	C		250		Z
MITK	22	0124	0126	0135	N16	W37	.686		19.3	11	SB		C	0126			D
MANI	22	0125	0130	0135	N17	W35	.671	15830	19.4	10	1B	3	C		200		Z
MANI	22	0505	0510	0527	N17	W36	.682	15830	19.5	22	1B	3	C		430		Z U
MANI	22	0915	0917	0921	N16	W40	.717		19.4	6	SB	3	C		60		F
RAMY	22	1151	1151	1221	N15	W40	.712		19.5	30	SB	2	C		44		F
RAMY	22	1214	1220	1242	N19	W65	.934		17.6	28	SB	3	C		97		
RAMY	22	1253	1255	1324	N15	W40	.712	15830	19.5	31	1B	3	C		233		
MCMA	22	1406E		1435	N16	W45	.768	15830	19.2	29D	SN		C	1406	50	.8	E
MCMA	22	1526	1530	1555	N16	W45	.768	15830	19.3	29	SF		C	1530	40	.6	E
MCMA	22	1534	1537	1550	N10	W72	.960	15836	17.2	16	SF		C	1537	30		E
MCMA	22	1556	1607	1633	N38	E44	.874	15840	26.0	37	SN		C	1607	50	1.0	E
RAMY	22	1558	1609	1632	N35	E42	.846		25.8	34	SB	3	C		114		

Hα SOLAR FLARES

FEBRUARY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.	
MCMA	22	1622	1627	1645	N10	W72	.960	15836	17.3	23	SF		C	1627	20		E
RAMY	22	1625	1628	1649	N 7	W72	.957		17.3	24	SB	3	C		16		
MCMA	22	1631	1635	1735	N16	W46	.778	15830	19.2	64	1B		C	1635	110	2.0	EHRX
RAMY	22	1633	1637	1709	N15	W42	.733		19.5	36	SB	3	C		164		
MCMA	22	1710	1716	1735	N21	W70	.962	15823	17.5	25	1B		C	1716	50	2.0	D
RAMY	22	1713	1715	1737	N19	W67	.945		17.7	24	SB	3	C		86		
RAMY	22	1808	1810	1847	N15	W43	.743		19.5	39	SB	3	C		104		FDE
RAMY	22	1857	1859	1923	N15	W43	.743	15830	19.6	26	1B	3	C		198		FDE
RAMY	22	1948	1948	2014	N19	W69	.955		17.7	26	SN	3	C		11		
MANI	23	0820E	0835	0846D	N17	W55	.861		19.2	26D	SN	3	C		30		
RAMY	23	1252	1252	1255	N16	W52	.833		19.6	3	SB	3	C		18		
HOLL	23	1452	1453	1502	N17	W53	.845	15830	19.6	10	1B	3	C		163		F
HOLL	23	1452	1453	1502	N17	W48	.801		20.0	10	SB	3	C		121		F
RAMY	23	1454E	1454	1507	N16	W53	.842	15830	19.6	13D	1B	3	C		168		
HOLL	23	1534	1630	1747	N17	W54	.853		19.6	133	SN	3	C		95		FDE
HOLL	23	1534	1621	1747	N17	W54	.853		19.6	133	SB	3	C		139		FDE
RAMY	23	1619	1621	1626	N16	W54	.850		19.6	7	SB	3	C		29		
RAMY	23	1725	1735	1742	N16	W55	.858		19.6	17	SB	3	C		97		DE H
RAMY	23	1805	1805	1824	N16	W55	.858		19.6	19	SN	3	C		35		
HOLL	23	1815	1830	1954D	N17	W54	.853	15830	19.7	99D	1B	3	C		157		F
RAMY	23	1825	1830	1849	N16	W55	.858	15830	19.6	24	1B	3	C		278		DE
PALE	23	1838E	1838U	1852	N18	W62	.914	15830	19.1	14D	1B	2	V		132		DE
RAMY	23	1849	1921	2017	N16	W56	.866		19.6	88	SB	3	C		47		
PALE	23	1856	1920	1936	N18	W62	.914		19.1	40	SN	2	C		64		DE
HOLL	23	1938	1953	2057	N17	W55	.861		19.7	79	SB	3	C		80		
PALE	23	1945E	1955U	2118D	N18	W63	.921		19.1	93D	SN	2	C		40		F
RAMY	23	2032	2051	2056	N16	W56	.866		19.7	24	SB	3	C		19		
RAMY	24	1208	1209	1212	N16	W65	.929		19.6	4	SB	3	C		17		
RAMY	24	1235	1241	1301	N16	W65	.929		19.6	26	SB	3	C		26		
RAMY	24	1333	1333	1336	N16	W65	.929		19.7	3	SN	3	C		20		
RAMY	24	1436	1437	1440	S21	E65	.900		1.5	4	SN	3	C		24		
RAMY	24	1547	1547	1558	N16	W70	.956		19.4	11	SB	3	C		26		
HOLL	24	1547	1547	1558	N16	W60	.897		20.2	11	SB	3	C		29		
RAMY	24	1636	1637	1656	N16	W68	.946		19.6	20	SB	3	C		34		
RAMY	24	1724	1726	1731	N16	W68	.946		19.6	7	SB	3	C		28		
RAMY	24	1933	1934	1937	S20	W13	.309		23.8	4	SN	3	C		21		
RAMY	24	2025	2026	2028	N16	W69	.952		19.7	3	SB	3	C		23		
HOLL	24	2025	2026	2030	N17	W69	.953		19.7	5	SB	3	C		28		
HOLL	24	2029	2031	2043D	S25	E 9	.339		25.5	14D	SN	3	C		50		F
RAMY	24	2030	2030	2037	S28	E13	.410		25.8	7	SN	3	C		28		F
HOLL	24	2100	2110	2124	N17	W69	.953		19.7	24	SN	3	C		40		
HOLL	24	2140	2140	2157	S25	E 9	.339		25.6	17	SN	3	C		35		F
HOLL	24	2149	2150	2155	N11	E63	.908		1.6	6	SN	3	C		20		
MITK	24	2314E	2338	2508	N20	W64	.930	15830	20.2	114D	1F		C	2338	130		
MITK	25	0638		0654D	S20	E63	.885	15847	2.0	16D	1N		P	0654	210	4.6	
MANI	25	0643E	0652	0719D	S20	E58	.844	15849	1.6	36D	1B	3	C		150		F
RAMY	25	1428	1429	1434	S25	E 1	.307		25.7	6	SB	3	C		68		
RAMY	25	1438	1445	1453	N16	W78	.986		19.8	15	SB	3	C		0		
BIGB	25	2010	2015	2028	S17	W38	.621		23.0	18	SN	2	C	2015	20	.2	
HOLL	25	2012	2024	2033	S14	W44	.691		22.5	21	SN	3	C		33		F
RAMY	25	2014	2014	2018	S16	W37	.605		23.1	4	SF	3	C		20		
PALE	25	2032	2032	2040	S33	W 8	.452		25.3	8	SF	3	C		30		DE F
BIGB	25	2047	2053	2102	S20	E53	.797		1.8	15	SN	2	C	2053	50	.6	
HOLL	25	2049	2052	2104	S21	E51	.779		1.7	15	SN	3	C		36		
RAMY	25	2050	2053	2100	S20	E52	.787		1.8	10	SN	3	C		23		
HOLL	25	2122	2129	2146	S20	W28	.500		23.8	24	SN	3	C		37		F
BIGB	25	2156	2213	2246	S21	E90	.999	15850	4.7	50	1N	2	C	2213	70		
HOLL	25	2206	2209	2228	S22	E83	.987		4.1	22	SN	3	C		0		F
BIGB	25	2223	2241	2254	N38	E08	.716		26.5	31	SF	2	C	2241	30	.3	
BIGB	25	2315	2317	2322	N40	W02	.734		25.8	7	SF	3	C	2317	30	.3	
PALE	26	0252	0254	0257	N17	W79	.989		20.2	5	SN	3	C		23		F
KAND	26	0814E	0838	0838D	N15	W90	1.001		19.6	24D	SN		C				
KAND	26	0903	0918	0918D	S33	W15	.490		25.3	15D	SF		C		52		
ISTA	26	0943E		0945	S24	E74	.954		4.0	2D	SF						D
CATA	26	1045	1050	1050D	S23	W25	.481		24.6	5D	SN	2	P	1050	84	.9	
MONT	26	1046	1047	1058	S22	W25	.474		24.6	12	SF		C	1047	50		E
MONT	26	1117	1122	1129	N16	W69	.952		21.3	12	SN		C	1122	110		G
MONT	26	1227	1234	1253	S32	W15	.477		25.4	26	SF		C	1234	60		E

Hα SOLAR FLARES

FEBRUARY 1979

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE FEB	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	26	1638	1639	1655	S31	W31	.609		24.4	17	SN	1	C	1639	30	.3	E
PALE	26	1735	1739	1751	S25	E63	.887		3.5	16	SN	3	C		26		DE
PALE	26	1800	1801	1824	S25	E63	.887		3.5	24	SN	3	C		35		DE
MCMA	26	1850E	1852	1857	N09	E90	1.000	15855	5.5	7D	SF		C	1852			
RAMY	26	1853	1853	1920D	N 5	E84	.996		5.1	27D	SF	3	C		0		
BIGB	26	1900	1923	1928	S13	E70	.933		4.0	28	SN	2	C	1923	10		
RAMY	26	1903	1906	1919	S27	E68	.922		3.9	16	SB	3	C		20		
MCMA	26	1905	1910	1915	S23	E68	.920	15854	3.9	10	SN		C	1910	50	1.4	E
PALE	26	1908	1909	1916	S24	E67	.914		3.8	8	SN	3	C		22		DE
MCMA	26	1923	1925	1933	S23	E68	.920	15854	3.9	10	SN		C	1925	50	1.4	E
RAMY	26	1924	1926	1937	S27	E68	.922		3.9	13	SB	3	C		55		
PALE	26	1925	1926	1929	S25	E63	.887		3.5	4	SN	3	C		30		DE
BIGB	26	1941	1942	1957	N07	E90	1.000		5.6	16	SN	3	C	1942	40		
BIGB	26	1955	2018	2046	S25	E68	.921	15854	3.9	51	1N	3	C	2018	150		
BIGB	26	2000	2003	2007	S21	E42	.680		2.0	7	SN	3	C	2003	20	.3	
RAMY	26	2001	2002	2009	S22	E40	.660		1.8	8	SN	3	C		34		
RAMY	26	2011	2013	2015	S27	E67	.916		3.9	4	SN	3	C		13		
RAMY	26	2025	2028	2032D	S27	E66	.909		3.8	7D	SN	3	C		13		
RAMY	26	2030	2031	2032D	S22	E38	.636		1.7	2D	SN	3	C		49		
BIGB	26	2109	2125	2125D	S25	E68	.921	15854	4.0	16D	1N	3	C	2125	130		
HOLL	26	2201E	2205U	2238	S23	E83	.987		5.1	37D	SN	2	C		0		
HOLL	26	2242	2246	2254	S23	E65	.901		3.8	12	SN	2	C		0		
HOLL	26	2309	2311	2326	S23	E65	.901		3.8	17	SN	2	C		0		
HOLL	26	2333	2333	2338	S23	E65	.901		3.9	5	SN	2	C		0		
RAMY	27	1535	1538	1541	S22	E85	.992		6.0	6	SN	3	C		20		
MCMA	27	1536	1537	1540	S20	E88	.997	15856	6.2	4	SN		C	1537			D
MCMA	27	1632	1635	1705	S32	W32	.626	15851	25.3	33	SN		C	1635	40	.5	E
MCMA	27	1634	1635	1644	S17	W07	.207	15852	27.2	10	SN		C	1635	25	.3	D
RAMY	27	1634	1637	1703	S36	W34	.674		25.1	29	SB	3	C		112		F
RAMY	27	1634	1635	1644	S20	W 6	.243		27.2	10	SN	3	C		44		
HOLL	27	1635	1640	1647	S34	W32	.641		25.3	12	SB	3	C		26		F
HOLL	27	1834	1834	1839	S20	W 7	.250		27.2	5	SN	3	C		48		F
RAMY	27	1834	1834	1843	S20	W 7	.250		27.2	9	SN	3	C		51		
HOLL	27	1908	1908	1912	N36	W19	.728		26.4	4	SN	3	C		22		
BIGB	27	2045	2047	2058	S17	W08	.217		27.3	13	SN	2	C	2047	40	.4	
HOLL	27	2047	2047	2056	S20	W 8	.258		27.3	9	SN	3	C		61		F
BIGB	27	2054	2102	2117	S18	W55	.815		23.7	23	SN	2	C	2102	100	1.8	
HOLL	27	2243	2246	2255	S20	W 9	.267		27.3	12	SN	3	C		27		
BIGB	27	2335	2345	2353	S18	W10	.251		27.2	18	SN	2	C	2345	80	.8	
HOLL	27	2335	2336	2354	S20	W 9	.267		27.3	19	SB	2	C		80		F
MITK	28	0028	0034	0042	N09	E70	.949	15855	5.3	14	1B		C	0034			
PALE	28	0032E	0034U	0045D	N 8	E63	.904	15855	4.7	13D	1B	3	C		141		F
PALE	28	0228	0228	0233	N 6	E66	.922		5.1	5	SN	3	C		37		F
KAND	28	0656E	0656	0711	N08	E67	.930		5.3	15D	SN		C				
KAND	28	0737	0743	0755	N08	E67	.930		5.3	18	SN		C				
ISTA	28	0741E		0745	S19	E78	.972		6.2	4D	SF						D
KAND	28	0809	0809	0826	N08	E67	.930		5.4	17	SN		C				
RAMY	28	1318	1321	1345	N 9	E62	.898		5.2	27	SN	3	C		35		
MCMA	28	1351E		1406	N09	E67	.932	15855	5.6	15D	SF		C	1351			EH
HOLL	28	1611	1741	1812	S24	E42	.689		3.8	121	SN	3	C		34		
RAMY	28	1611	1615	1620	N 8	E62	.896		5.3	9	SN	3	C		26		
HOLL	28	1613	1614	1620	N 8	E63	.904		5.4	7	SN	3	C		14		
HOLL	28	1628	1628	1635	S22	E70	.932		5.9	7	SN	3	C		17		
HOLL	28	1638	1651	1655	S22	E70	.932		5.9	17	SN	3	C		16		
RAMY	28	1650	1652	1656	S20	W19	.382		27.3	6	SB	3	C		33		
HOLL	28	1709	1712	1729	S22	E70	.932		6.0	20	SN	3	C		18		
HOLL	28	1730	1735	1818	S22	E70	.932		6.0	48	SB	3	C		38		
BIGB	28	1734	1735	1739	S22	E71	.938		6.1	5	SN	3	C	1735	10		
HOLL	28	1837	1840	1855	S22	E69	.926		6.0	18	SN	3	C		17		

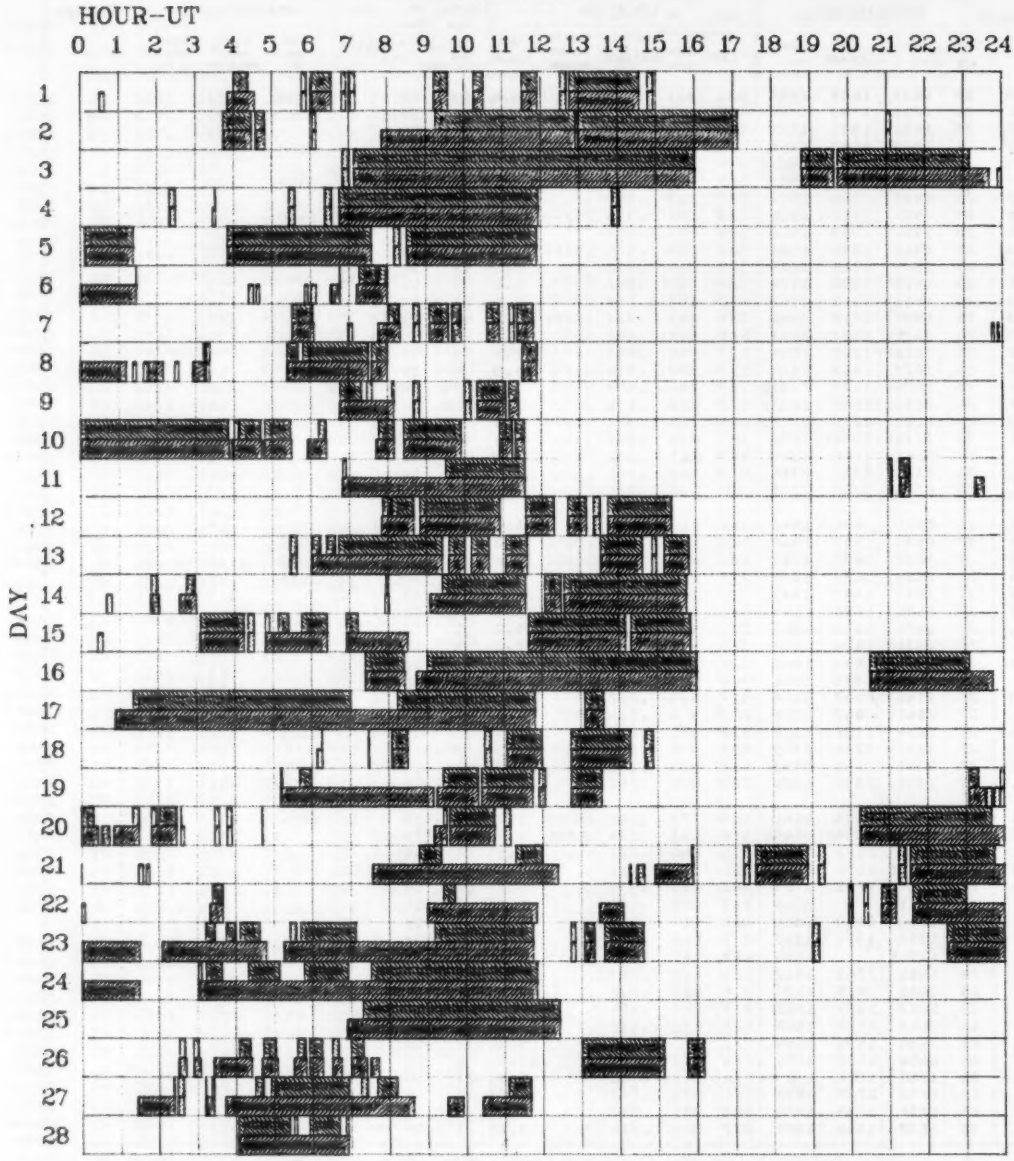
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

FEBRUARY 1979



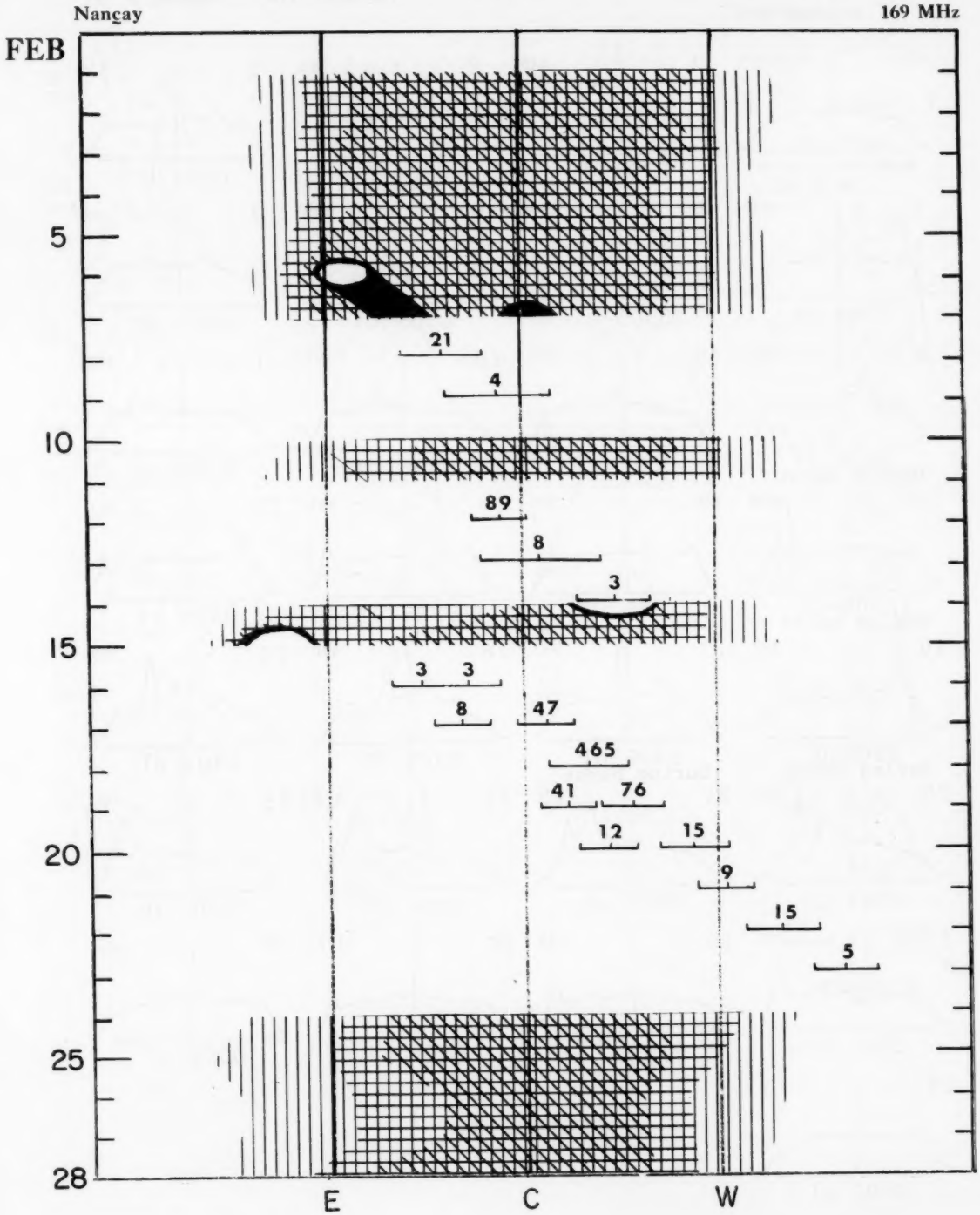
Observatories included in total patrol:

Big Bear	Holloman	Manila	Mitaka	Palehua	Upice
Bucharest	Istanboul	McMath-Hulbert	Monte Mario	Ramey	Wendelstein
Catania	Kandilli				

Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

FEBRUARY 1979

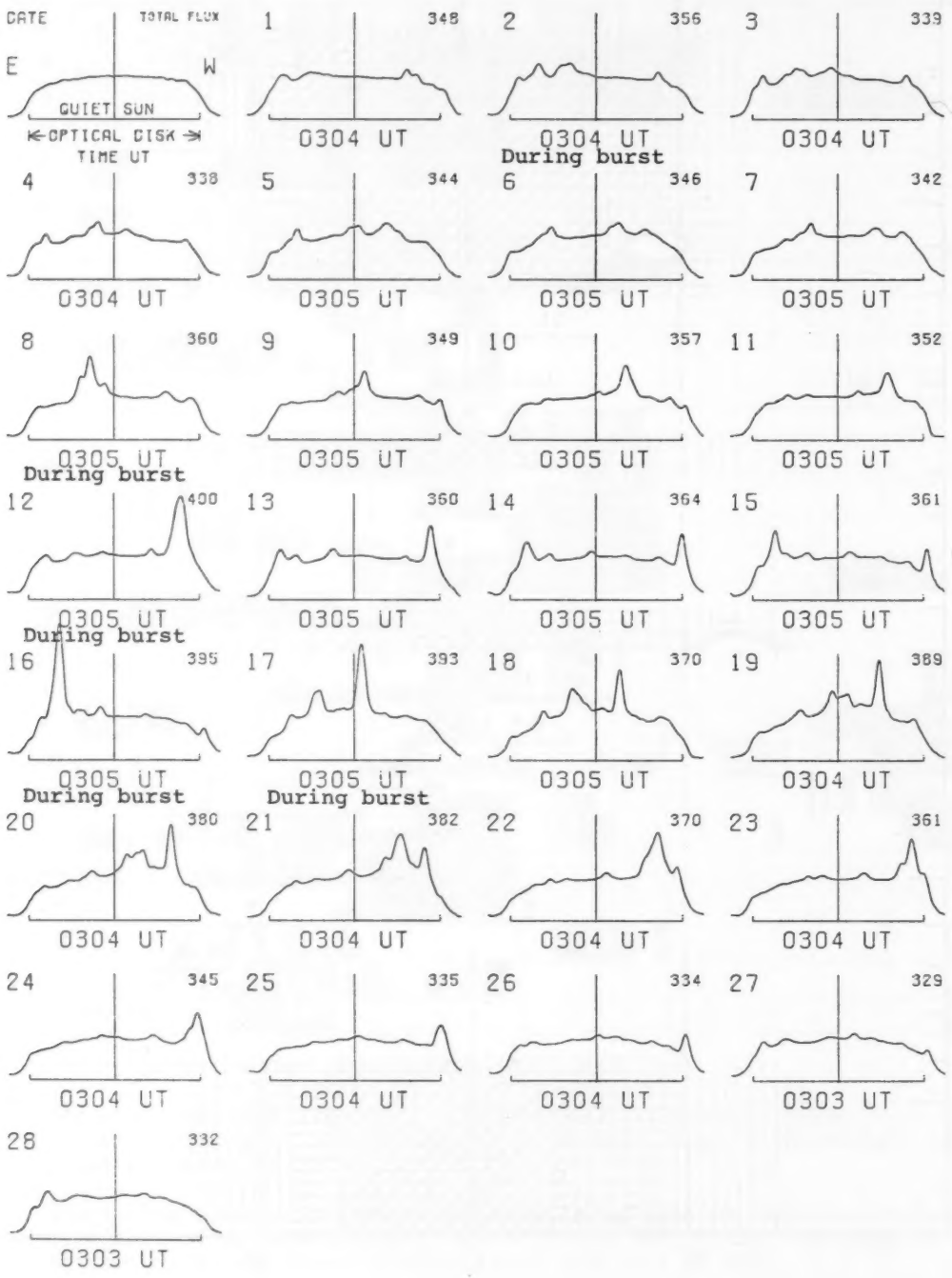


26
Feb 79

EAST-WEST SOLAR SCANS
FEBRUARY 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

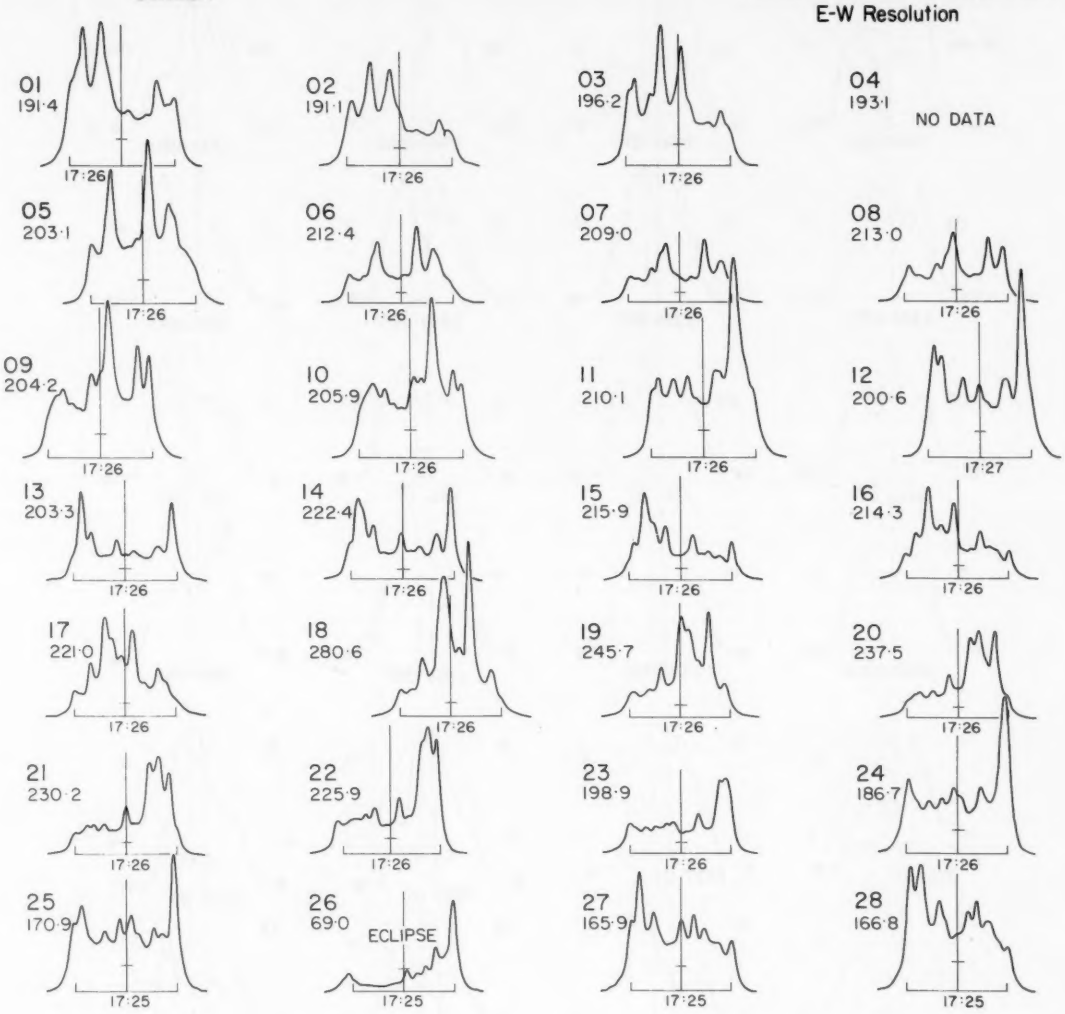


EAST-WEST SOLAR SCANS

FEBRUARY 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

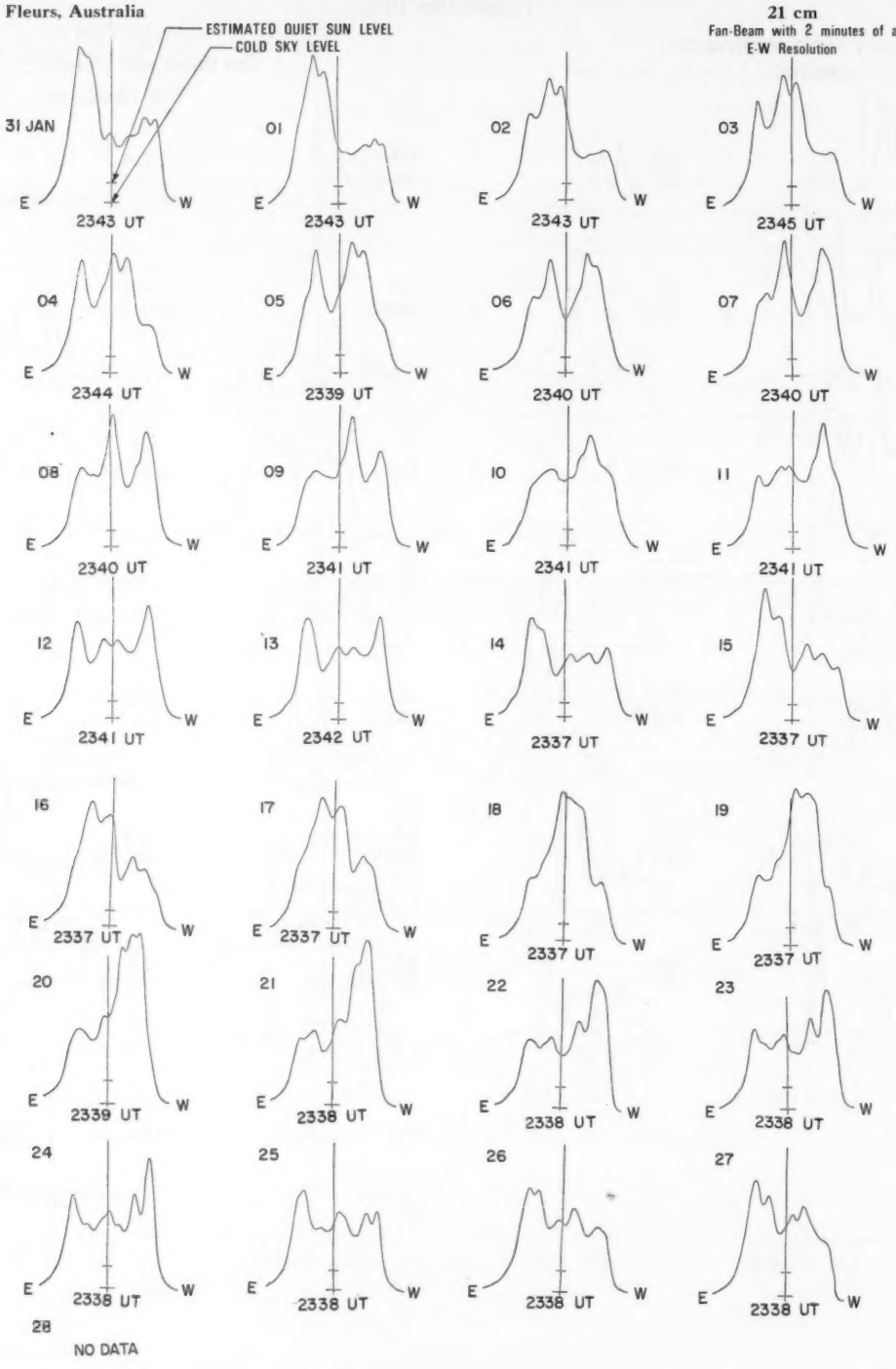


EAST-WEST SOLAR SCANS

FEBRUARY 1979

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



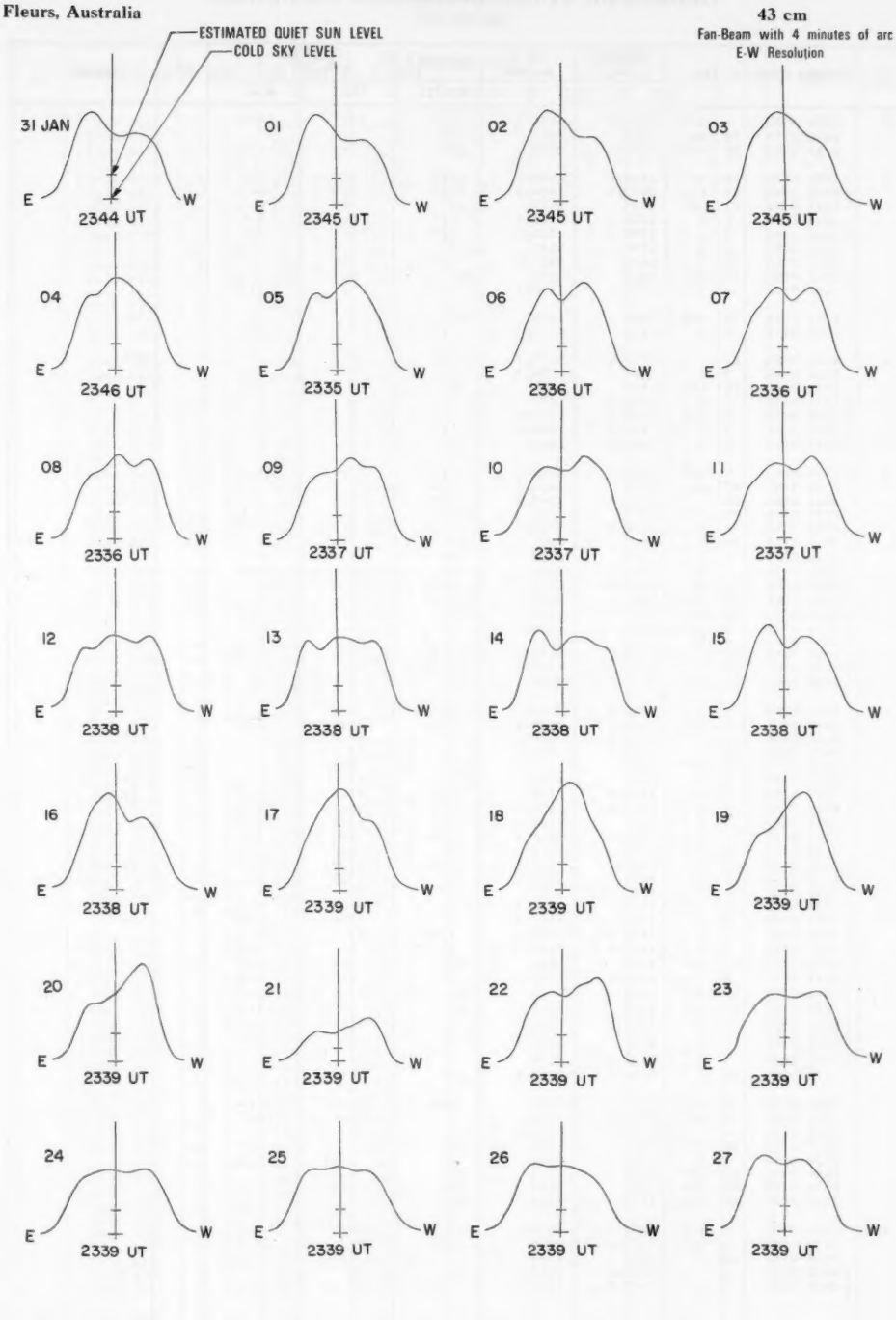
EAST-WEST SOLAR SCANS

FEBRUARY 1979

Fleurs, Australia

43 cm

Fan-Beam with 4 minutes of arc E-W Resolution



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NO DATA

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2695	MANI	4 S/F	0805.9	0808.5	4.6	53.7	17.9		
	2800	OTTA	20 GRF	1848	1850	20	1.8			
	2800	OTTA	20 GRF	2030	2033	20	2.2	1.1		
2	8800	SGMR	20 GRF	1428.2	1438.2	22.3	4.6	1.4		
	2695	SGMR	20 GRF	1429.4	1444.5	25.6	9.4	2.8		
	2800	OTTA	20 GRF	1430	1435	30	4.6	2.3		
	2695	SGMR	1 S	1759.3	1800.1	2.7	6.1	1.8		
	8800	SGMR	3 S	1759.3	1800.1	2.7	11.3	3.4		
	2800	OTTA	1 S	1759	1800	2	5.4	2.9		
	2800	OTTA	8 S	2024	2024.2	.5	5.4			
	2695	PENT	21 GRF	2050	2152	150 D	5.8			
	2695	PENT	1 S	2302	2302.7	2	3.4	1.7		
3	2800	OTTA	20 GRF	1600	1645	170	4	2		
	2800	OTTA	8 S	1755.6	1755.6	.5	3.2	1.6		
4	8400	BERN	22	0826.6	0827.7	4.5	15			OPR
	2800	OTTA	3 S	1724	1724.9	2	10.2	2.6		
	2800	OTTA	21 GRF	1823	1855	95	7	3.3		
	2800	OTTA	1 S	1826.8	1828	2	4	2		
	2800	OTTA	2 S/F	1837.2	1837.5	1	6	3		
	2800	OTTA	8 S	1849.5	1849.5	.1	2			
	2800	OTTA	1 S	1901.5	1903	4	4	2		
5	2695	MANI	4 S/F	0637.7	0640.8	7.3	63.6	21.2		
	8800	MANI	47 GB	0638	0640.8	5.5	675	147		I
	8400	BERN	22	1144.5	1147.3	5.5	29			7L
	2800	OTTA	21 GRF	1725	1850	155	5.6	2.8		
	2800	OTTA	8 S	1908.2	1908.5	.5	7.2			
	2800	OTTA	240AR	2014	2024	10	3.4			
	2800	OTTA	1 S	2019	2021	3	4	2		
	2800	OTTA	4 S/F	2119	2121	8	66	21.4		
	2695	BOUL	4 SF	2120.5E	2122	3.50	34	28		
	2695	BOUL	29 PBI	2124	2124	39 J	26	9		
	2800	OTTA	30 PBI	2127	2127	35	4.8	2.4		
	2800	OTTA	4 S/F	2130	2132.2	6	80	21.6		
	2695	BOUL	4 SF	2131 E	2133	3 D	108	36		
	2695	PENT	46F C	2148.2	2149.3	3.8	24	10.9		
	2695	BOUL	45 C	2149.5E	2151.5	2.50	40	13		
	2695	PENT	29 PBI	2152	2152	4	4	2		
6	2695	MANI	1 S	0240.8	0241.4	2.5	8.2	2.7		
	2695	MANI	4 S/F	0444.4	0445.3	2.3	11.4	3.8		IG
	8400	BERN	4	0914.8	0915.4	3	42			3L
	8400	BERN	20	1259.1	1300.9	6	11			
	2800	OTTA	21 GRF	1340		120	8.2			
	8400	BERN	4	1347	1348.1	5	52			18L
	2695	SGMR	3 S	1347.4	1349	6.6	42.9	12.9		3G
	8800	SGMR	3 S	1347.4	1348.4	3.6	45.2	13.5		3G
	2800	OTTA	3 S	1347	1348.2	3.5	40.4	10.1		
	2800	OTTA	1 S	1352.5	1352.8	1.5	3.4	1.8		
	2800	OTTA	21 GRF	1555	1627	65	6.2	3.1		
	2695	SGMR	3 S	1600.2	1601	4.8	39.9	16		3G.SWF
	2800	OTTA	45 C	1600	1600.6	10	19.8	5		
	2695	BOUL	4 SF	1601 E	1602	2 D	26	9		
	2800	OTTA	4 S/F	1618	1618.3	6	20.2	5.2		
	2695	SGMR	3 S	1619	1619.7	6	29.5	11.8		SWF
	2695	BOUL	3 S	1619.5E	1620.5	1.50	47	16		
	2800	OTTA	1 S	1645.5	1647.7	5	2	1.5		
	2800	OTTA	21 GRF	1750	1810	120	2.8	1.4		
	2800	OTTA	1 S	1752.2	1752.5	2	3.8	1.9		
	2800	OTTA	23 GRF	2000	2134	200	10.8	5.4		
	2695	PENT	22 GRF	2005	2010	12	2.8	1.4		
	2695	PENT	1 S	2018.8	2019.5	2	1.2	.6		
	2800	OTTA	1 S	2031.5	2033.2	3	3.8	1.8		
	2800	OTTA	4 S/F	2036	2037	2	39	7		
	2695	BOUL	3 S	2037.5E	2038	1 D	34	11		
	2800	OTTA	45 C	2054.5	2055.5	4	6.2	3.1		
7	2695	MANI	4 S/F	0352.2	0354	3.6	101.6	67.8		
	8800	MANI	4 S/F	0352.7	0354	3	109.1	72.7		
	8400	BERN	1	1125.5	1125.9	1	28			
	2800	OTTA	20 GRF	1618	1624	27	2.6	1.3		
	2800	OTTA	1 S	1842	1843	2	2.6	1.3		
	2695	PENT	20 GRF	1957	2002	15	1.8			
	2800	OTTA	20 GRF	2020	2024	20	1.8	1		
	2695	PENT	22 GRF	2120	2250	140	7			
8	2695	MANI	4 S/F	0203.8	0206.2	10	102.4	68.3		
	2695	MANI	4 S/F	0225.2	0244	32.3	56	37.3		
	2800	OTTA	240 R	1347	1349	2	2.2	1.1		
	8400	BERN	2	1447.2	1448.1	10	46			14L
	8800	SGMR	3 S	1447.6	1448.3	4.6	29	2		SWF

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	3 S	1447	1446.2	13	25	8.2		
	2695	SGMR	3 S	1448	1446.4	4.2	31	6		SWF
	2800	OTTA	21 GRF	1518	1545	125	8.6	4.3		
	2800	OTTA	4 S/F	1519	1522.4	6	17.6	5.9		
	8800	SGMR	3 S	1520.2	1523.1	3.9	15	3		
	8400	BERN	46	1522.1	1523	7	18			
	2800	OTTA	26 FAL	1920	2010	50	-3.4			
	2800	OTTA	1 S	2053.5	2053.9	1	2.2	1.1		
	2800	OTTA	1 S	2114	2115.2	2	3.6	1.0		
	2800	OTTA	29 PBI	2116	2116	25	1.8	1.3		
	2695	PENT	8 S	2237.8	2237.9	.2	3.6	1.8		
	2695	PENT	21 GRF	2242	2300	50	3.4	1.7		
	2695	PENT	3 S	2249	2249.5	3	32	7.8		
	2695	BOUL	3 S	2250 E	2251	1.5D	41	14		
	2695	PENT	8 S	2314.7	2314.8	.7	8.4	2.1		
	2695	PENT	8 S	2327.8	2327.9	.5	7.2			
9	2695	MANI	1 S	0024	0024.2	.6	9.2	3.1		
	8400	BERN	1	1334.7	1335.1	2	11			
	8800	SGMR	3 S	1618.7	1618.9	1.3	15.5	4.7		
	2800	OTTA	20 GRF	1625	1630	25	3	1.7		
	2800	OTTA	1 S	1728	1728.8	2	2.6	1.3		
	2800	OTTA	1 S	1732	1736	8	2.2	1.1		
	2800	OTTA	24 R	1812	1817	5	3	2		
	2800	OTTA	27F RF	1812		63	3	2.7		
	2800	OTTA	24P R	1817		50	3			
	2800	OTTA	26 FAL	1907	1915	8	-3	-1.5		
	2800	OTTA	1 S	1918	1920	5	2.2	1.1		
	2800	OTTA	20 GRF	2005	2030	45	2.4	1.2		
	2695	PENT	20 GRF	2054	2055	30	2	1.2		
	2695	PENT	20 GRF	2148	2200	35	6.6	3.3		
10	8400	BERN	20	0956.7	0957.3	7	18			
	8400	BERN	20	1243	1248.4	38	15			
	2800	OTTA	20 GRF	1427	1520	80	3	2.3		
	8400	BERN	20	1428.9	1430	4	56			8R
	8800	SGMR	3 S	1429.7	1430	1.8	71.5	21.5		
	2800	OTTA	20 GRF	1645	1652	25	2			
	2800	OTTA	20 GRF	1740	1840	120	3	1.8		
	2800	OTTA	3 S	2036.5	2037.5	3	14.6	7.2		
	2695	SGMR	3 S	2037.2	2037.7	6.8	13.7	5.5		
	2695	BOUL	3 S	2037.5E	2038	2 D	13	4		
	2800	OTTA	32 ABS	2050	2140	115	-6.6	-3.3		
11	8400	BERN	21	1141	1238.3	96	57			
	8400	BERN	21	1141	1211.2	96	13			
	8400	BERN	21	1141	1142.1	96	8			
	2800	OTTA	21 GRF	1320	1440	190	9.4			
	2800	OTTA	1 S	1551	1551.6	1.2	2.6	1.3		
	2800	OTTA	20 GRF	1655	1755	205	7	4.5		
	8800	SGMR	3 S	2034.4	2034.5	9.6	33.3	13.3		
	2695	SGMR	3 S	2034.6	2036.5	9.4	22.2	8.9		
	2800	OTTA	4 S/F	2034	2036.2	4	22	12		
	2695	BOUL	45 C	2035 E	2036	3.5D	26	9		
	2800	OTTA	29 PBI	2038	2038	5	2.4			
	2695	PENT	26 FAL	2050	2100	10	-3.6	-1.8		
	2695	PENT	32 ABS	2130	2205	70	-3.6	-1.8		
12	2695	MANI	4 S/F	0024.2	0026.4	6.4	52.9	17.6		
	2695	MANI	4 S/F	0213	0213.7	5.3	16.1	10.7		I
	8400	BERN	46	0810.5	0812.9	3.5	40			8R
	2695	MANI	4 S/F	0811.6	0813.3	3.8	13.4	4.5		I
	8400	BERN	2	0918.9	0919.6	4	24			7R
	8400	BERN	22	0957	1143.6	113	21			
	2800	OTTA	4 S/F	1430	1438.5	10	15	4		
	8400	BERN	2	1435.4	1438.7	22	21			
	8800	SGMR	1 S	1437.8	1439.1	4.2	8.6	3.4		SWF
	2695	SGMR	3 S	1438.1	1438.9	1.8	18.9	7.6		SWF
	2800	OTTA	21 GRF	1735	1840	105	3			
	2800	OTTA	1 S	1835	1835.3	1	3.4	1.7		
	8800	SGMR	3 S	1946	1950.1	6	39.1	15.6		S,SWF
	2800	OTTA	46F C	1946.4	1951	8.6	126	21.4		
	2695	SGMR	3 S	1946.8	1951.3	5.2	148	59.2		S,SWF
	2695	BOUL	45 C	1947 E	1948	1.5D	33	11		
	2695	BOUL	28 PRE	1950.5E	1951	1 D	26	9		
	2695	BOUL	8 S	1951.5E	1952	1.5D	132	44		
	2695	BOUL	29 PBI	1953 E	1953.5	1 D	40	13		
	2800	OTTA	29 PBI	1955	1955	8	3.6	1.8		
	2800	OTTA	1 S	2128.9	2129	3	3	1.5		
	2695	PENT	21 GRF	2146	2210	95	4.6	2.3		
	2800	OTTA	4 S/F	2147	2149.2	3.5	30	12		
	2695	BOUL	4 SF	2149 E	2149.5	2 D	54	18		
	2695	PENT	1 S	2205	2207	4	3	1.4		
	2695	PENT	1 S	2231	2231.9	2	7.8	2.6		
13	2695	MANI	2 S/F	0034.7	0037	3.5	7.2	4.9		I

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} W m^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	8400	BERN	3	0742.1	0744.1	4	25			
	8400	BERN	27	1030	1102	132	26			
	2800	OTTA	21 GRF	1330	1355	155	2.2	1.1		
	8400	BERN	3	1418.6	1420.1	7	28			
	2800	OTTA	1 S	1501.5	1503	2.5	2.4	1		
	2800	OTTA	1 S	1506	1506.5	2	1.4	.7		
	2800	OTTA	20 GRF	1540	1543	20	2.2	1.1		
	2800	OTTA	240 R	1620	1627	7	2	1		
	2695	PENT	240 R	1707	1720	13	2.6	1.3		
	2800	OTTA	21 GRF	1740	1940	230	9.2	6		
	2800	OTTA	20 GRF	1750	1755	15	3.4	1.9		
	2800	OTTA	1 S	1904	1904.5	1	2.6	1.3		
	2800	OTTA	2 S/F	1956.5	1959.9	2.5	9.8	4.8		
	2695	BOUL	3 S	1958 E	1959	2 D	13	4		
	2695	PENT	21 GRF	2200	2230	75	5.2	2.6		
	2695	PENT	22 GRF	2215	2219.5	12	6.8	3.4		
14	8400	BERN	21	1140.5	1201.8	85	10			
	2800	OTTA	2 S/F	1306.5	1306.7	1.5	4.4			
	2695	SGMR	3 S	1341.5	1341.9	.7	17.2	5.2		
	2800	OTTA	1 S	1358	1358.5	1	2.2	1		
	2800	OTTA	21 GRF	1515	1641	285	23.8	11.1		
	2800	OTTA	40 F	1537.5	1602	35	12.6			
	2695	SGMR	45 C	1545.5	1549.1	142.5	9.4	5.2		SWF
	2695	SGMR	45 C	1545.5	1636.4		17.6			SWF
	8800	SGMR	45 C	1548.7	1635		20.5			SWF
	8800	SGMR	45 C	1548.7	1553	139.3	9.5	6.2		SWF
	2695	BOUL	20 GRF	1549 E	1645 U	181 D	19	6		
	2800	OTTA	2 S/F	1756	1758	3	3.4	.8		
15	2800	OTTA	23 GRF	1522	1619.4	155	15.2	6.6		
	8800	SGMR	3 S	1714.2	1714.9	3.8	80.9	32.4		SWF
	2695	SGMR	3 S	1714.2	1716.3	4.3	139	55.6		SWF
	2800	OTTA	45 C	1714	1716.3	10	130	31		
	2695	BOUL	45 C	1715 E	1717	7.5D	132	44		
	2695	BOUL	3 S	1715 E	1716	1 U	47	16		
	2800	OTTA	29 PBI	1724	1724	8	5.6	2.8		
	2800	OTTA	20 GRF	2030	2053	52	5	2.5		
	2695	PENT	22 GRF	2128	2157	92	14.6	5.7		
16	2695	MANI	47 GB	0141.8	0229.3	134	30000	7000		
	8800	MANI	4 S/F	0148.4	0151.6	10.9D	465 D	154.2D		IG,SCNA
	2800	OTTA	4 S/F	1254	1257	8	122.4	32.4		
	2695	SGMR	3 S	1255	1257.2	6.4	175	70		S
	8800	SGMR	3 S	1255.6	1256.6	6.8	478	191		S
	2800	OTTA	20 GRF	1325	1335.5	40 D	6.6			
	2800	OTTA	1 S	1445.2	1446	2	4.4	2.2		
	2800	OTTA	1 S	1504	1504.5	1	4.4	2.2		
	2695	BOUL	3 S	1520.5E	1520.5	.5D	13	4		
	2800	OTTA	1 S	1534.5	1535	1	3.4	1.7		
	2800	OTTA	20 GRF	1620	1628.5	40	9.6	3.2		
	2800	OTTA	40 F	1721	1735	15	56.8			
	8800	SGMR	45 C	1722	1722.3	51.8	27	31		3S,SWF
	8800	SGMR	45 C	1722	1734.7		102			3S,SWF
	2695	SGMR	45 C	1722.4	1722.7	50.6	14	11		3S,SWF
	2695	SGMR	45 C	1722.4	1754.3		46			3S,SWF
	2695	SGMR	45 C	1722.4	1735.2		56			3S,SWF
	2695	BOUL	3 S	1722.5E	1723	1 D	20	7		
	2695	BOUL	8 S	1735 E	1735.5	1 D	71	24		
	2800	OTTA	4 S/F	1751	1755.1	6	29.4	7.6		
	2695	BOUL	4 SF	1755.5E	1756	1.5D	35	12		
	2800	OTTA	30 PBI	1758	1758	19	4.4	2.4		
	2800	OTTA	40 F	1805.8	1809	7	79			
	2800	OTTA	31 ABS	1818 ~	1827	26	-4.2	-2.1		
	8800	SGMR	3 S	1900.1	1900.4	1.7	46.2	18.5		
	2695	SGMR	3 S	1900.2	1900.6	1.7	14.8	5.9		
	2800	OTTA	3 S	1900	1900.4	2	13.6	4.6		
	2695	BOUL	3 S	1901 E	1901.5	1.5D	14	5		
	2800	OTTA	1 S	1952	1952.7	1	4.4	2.2		
	2695	SGMR	3 S	1954	1954.9	3.5	25.2	10.1		5
	8800	SGMR	3 S	1954.8	1955.7	2.7	80.9	32.4		5
	2800	OTTA	4 S/F	1955.5	1956	3	26.2	11.4		
	2695	BOUL	3 S	1956.5E	1957.5	2 D	28	9		
	2800	OTTA	4 S/F	2050.3	2051.5	2.5	56.8	19		
	2800	OTTA	21 GRF	2050	2113	40	3.8	2		
	2695	SGMR	2 S	2051	2052	1.9	57	12		
	2695	BOUL	4 SF	2051.5E	2052.5	1.5D	81	27		
	2800	OTTA	1 S	2055	2055.5	1.5	2.6	1.3		
	8800	SGMR	3 S	2139.5	2140.9	12.5	134	21		3S
	2800	OTTA	40 F	2140.2	2140.3	1.5	12.2			
	2800	OTTA	21 GRF	2140	2142	20	4.6	2.3		
	2695	SGMR	3 S	2143.1	2144.2	4.8	98	20		3S
	2800	OTTA	4 S/F	2143.2	2143.9	3	102	19		
	2695	BOUL	8 S	2144 E	2144.5	1 D	136	35		
	2695	PENT	4 S/F	2150.2	2150.5	3	13.2	4.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	PENT	1 S	2158.8	2159.2	1	5.6			
	2695	PENT	8 S	2214.2	2214.2	.1	6.8			
	2695	PENT	40 F	2218	2221.6	10	166			
	2695	BOUL	40 F	2219 E	2222.5	8 D	149	50		
	2695	MANI	4 S/F	2235.3	2235.6	.6	128.1	85.4		IG
	2695	PENT	3 S	2235	2235.7	1	189	94		
	2695	BCUL	8 S	2236 E	2236.5	1 D	165	55		
	2695	PENT	40 F	2252.5	2254.7	13	56			
	2695	BOUL	42 SER	2253.5E	2256	12 D	50	17		
17	2695	PENT	8 S	0021	0021	.1	24.6			
	2695	PENT	4 S/F	0022.7	0023.8	2	430	132.8		
	2695	MANI	4 S/F	0234.7E	0235.2	11.8D	461.9	150		
	8800	MANI	4 S/F	0234.7E	0237.7	5.4D	265.8	105		IG
	2695	MANI	4 S/F	0311.6	0312	1.4	163.9	109.2		
	2695	MANI	4 S/F	0436.7	0437.3	3.3	28.6	9.5		
	8400	BERN	23	0802	0819.6	26	56			9R
	2695	MANI	4 S/F	0810.6	0810.9	1.4	28.6	9.5		
	8400	BERN	1	1218.6	1219.3	5	10			
	8400	BERN	23	1240.3	1253.2	40	15			
	2800	OTTA	21 GRF	1320	1450	200	9.2			
	8400	BERN	45	1436.4	1438.2	53	29			
	8800	SGMR	3 S	1437.2	1438.5	3	42.1	12.6		S,SWF
	2800	OTTA	45 C	1438.1	1439.1	1.5	40	13		
	2695	BOUL	45 C	1438.5E	1440	2 D	36	12		
	2695	SGMR	3 S	1438.5	1439.8	1.6	140	42		S,SWF
	2800	OTTA	240 R	1717	1725	8	3.2	2		
	2800	OTTA	240 R	1822	1825	3	2.4	1.2		
	2800	OTTA	40 F	1839.5	1848	11	7.8			
	2800	OTTA	24 R	1839	1851	12	3.2			
	2800	OTTA	27A RF	1839		180	3.2	2.8		
	2800	OTTA	24P R	1851		129	3.2			
	2800	OTTA	3 S	1905.5	1905.6	1	11.6	2.9		
	2800	OTTA	40 F	2022.6	2022.7	1	11			
	2800	OTTA	40 F	2031.8	2031.8	1.5	46			
	2695	SGMR	3 S	2032.1	2032.6	2.1	37.4	11.2		CONT
	2695	BCUL	45 C	2032 E	2032.5	1.5D	42	14		
	2800	OTTA	26 FAL	2100	2140	40	-3.2	-1.6		
	2800	OTTA	20 GRF	2126	2130	13	1.8	1		
	2695	PENT	20 GRF	2223	2235	35	3			
18	2695	MANI	4 S/F	0448.4	0449	5	52.8	17.6		I
	2695	MANI	4 S/F	0637.7	0645.6	12.3	173.6	115.8		
	8800	MANI	47 GB	0638.2	0645.8	12.3	670	266		I,SCNA
	8400	BERN	2	0804.9	0810.4	8	19			5R
	8400	BERN	21	1114	1424	202	16			
	8400	BERN	23	1114	1306.1	202	25			24R
	8400	BERN	21	1114	1241.5	202	19			
	8400	BERN	21	1114	1216.4	202	40			34R
	2695	SGMR	45 C	1209	1231.8		70.9			CONT
	2695	SGMR	45 C	1209	1215.7	28.8	130	39		CONT
	8800	SGMR	2 S	1212.4	1216.2	25.6	30.4	12.2		CONT
	2800	OTTA	20 GRF	1310	1325	40	7	3.5		
	2800	OTTA	240 R	1435	1445	10	4.6	2.3		
	8400	BERN	1	1504	1505	2	9			10R
	2800	OTTA	1 S	1504.5	1505	1.5	2.4	1.2		
	8400	BERN	45	1537.6	1539.2	40 D	39			10R
	2800	OTTA	2 S/F	1538	1538.9	1.2	6	3.1		
	2800	OTTA	8 S	1539.5	1539.7	.3	4.6	2.3		
	2800	OTTA	28 PRE	1616	1634.7	18.7	15.4	7		
	2695	BOUL	28 PRE	1621.5E	1637	15 D	29	10		
	8800	SGMR	47 GB	1628	1636.5	72	705	333		4,SWF
	8800	SGMR	47 GB	1628	1709.9		324			4,SWF
	8800	SGMR	47 GB	1628	1703.9		278			4,SWF
	8800	SGMR	47 GB	1628	1641.5		2350			4,SWF
	2800	OTTA	47 GB	1634.7	1641	12.3	1945	313		
	2695	SGMR	47 GB	1634.9	1637.3	66.7	900	688		4,SWF
	2695	SGMR	47 GB	1634.9	1710.4		185			4,SWF
	2695	SGMR	47 GB	1634.9	1704.4		363			4,SWF
	2695	SGMR	47 GB	1634.9	1641.6		3000			4,SWF
	2695	BCUL	47 GB	1637	1642	7	2979	993		
	2695	BCUL	29 PBI	1644	1644	67	163	54		
	2800	OTTA	33 PBI	1647	1647	150	69	22.2		
	2695	PENT	45 C	1701.5	1704.2	14.5	236	56		
	2695	BOUL	45 C	1702.5	1705	4	342	114		
	2695	BCUL	3 S	1710.5	1711	3	142	61		
	2800	OTTA	1 S	1838	1840	4	2.4	1.2		
	2800	OTTA	40 F	1852	1857.6	7	6.7			
	2800	OTTA	1 S	1927	1929	4	3.2	1.6		
	2800	OTTA	46F C	1950	1955.5	14	39	20.6		
	2695	SGMR	3 S	1952.3	1954.8	11.6	38	7		CONT,SWF
	8800	SGMR	3 S	1953.3	1954.7	8.2	103	31		CONT,SWF
	2695	BCUL	21 GRF	1954 E	1957	13 D	36	12		
	2800	OTTA	30 PBI	2004	2004	55	12	8		
	2695	PENT	2 S/F	2007	2008.2	9	7	3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	8800	SGMR	3 S	2121.3	2121.9	5.2	182	36		CONT
	2695	PENT	21 GRF	2125		100	10			
	2695	PENT	1 S	2136	2137	7	3.2	1.7		
	2695	PENT	46F C	2205	2207	15	55	23		
	2695	BOUL	45 C	2207 E	2211	7.5D	58	19		
19	8400	BERN	3	0754.1	0758.4	10	17			
	8400	BERN	21	0811.5	0820.4	18	28			
	8400	BERN	45	1007.3	1032.8	83	35			4R
	8400	BERN	3	1220.3	1220.8	9	73			16R
	8400	BERN	46	1515	1525.7	70	227			4R
	2800	OTTA	23 GRF	1515	1522	90	19	7.6		
	2695	SGMR	3 S	1521	1527	15.5	57.4	23		3G,CONT,SWF
	8800	SGMR	3 S	1521	1526.4	15	337	123		3G,CONT,SWF
	2695	BOUL	28 PRE	1522 E	1525 U	4 D	21	7		
	2800	OTTA	4 S/F	1525	1525.8	6	41.8	15.4		
	2695	BOUL	3 S	1526	1527.5	2 D	65	22		
	2695	BOUL	29 PBI	1528	1528	10 U	21	7		
	2800	OTTA	21 GRF	1557	1605	23	4.2	2.1		
	2800	OTTA	1 S	1602	1603	2.5	6.2	2.1		
	2800	OTTA	24 R	1755	1806.5	11.5	11	5		
	2800	OTTA	27A RF	1755		280	11	9.1		
	2695	SGMR	3 S	1758	1809.1	42	130	52		SWF
	2800	OTTA	1 S	1758	1801.5	5	7.6	4		
	8800	SGMR	3 S	1759	1808.5	41	286	114		SWF
	2800	OTTA	24P R	1806.5		183.5	11			
	2800	OTTA	4 S/F	1807	1809	4	112	47.2		
	2695	BOUL	45 C	1808.5E	1810	3 D	106	35		
	2695	BOUL	29 PBI	1811.5	1815	43 U	43	14		
	2800	OTTA	29 PBI	1811	1811	80	35.6	19		
	2695	PENT	1 S	2003	2006	7	3	1.5		
	2800	OTTA	26 FAL	2110	2235	85	-11	-5		
	2695	PENT	1 S	2148	2150	10	2.6	1.3		
	2695	PENT	40 F	2221	2225.5	8	6.6			
	2695	PENT	40 F	2246	2246.5	11	7.8			
20	8400	BERN	1	0849.5	0850.1	4	11			OPR
	2695	MANI	4 S/F	0850.4	0851.1	2.5	18	6		I
	8400	BERN	46	1042.3	1054.1	23	46			11R
	8400	BERN	1	1123	1124.2	14	35			17R
	8400	BERN	2	1145.3	1146	18	51			21R
	8400	BERN	2	1228.5	1232.6	12	37			15R
	8400	BERN	41	1316.6	1327.1	19	28			17R
	8400	BERN	41	1316.6	1320.9	19	21			5R
	8400	BERN	41	1316.6	1317.1	19	15			6R
	2800	OTTA	1 S	1317	1317.1	1	4.8	2.4		
	2800	OTTA	1 S	1320.7	1321	1	4.8	2		
	8800	SGMR	1 S	1326.9	1327.8	1.7	8.5	3.4		
	2695	SGMR	3 S	1327.1	1327.4	2	39.6	15.8		
	2800	OTTA	3 S	1327	1327.3	2.5	38	9.6		
	8400	BERN	1	1347.9	1348.4	9	20			10R
	8400	BERN	46	1411.1	1416	49	79			9R
	8800	SGMR	3 S	1412.2	1415.7	7	94	28		
	2695	SGMR	3 S	1414.8	1416.5	5	43	13		
	2800	OTTA	20 GRF	1420	1503	80 D	7.2			
	2800	OTTA	240 R	1603	1610	7	3.6	1.8		
	8400	BERN	1	1610	1614.3	12	40			18R
	2695	SGMR	3 S	1613.3	1614.9	15.7	72	28.8		
	8800	SGMR	3 S	1613.5	1614.5	15.5	28.1	11.2		
	2800	OTTA	3 S	1613	1614.5	5	59	26.6		
	2695	BOUL	3 S	1614 E	1615.5	3.5D	76	25		
	2695	BOUL	29 PBI	1617.5	1617.5	41 U	29	10		
	2800	OTTA	30 PBI	1618	1618	50	11.8			
	2800	OTTA	46F C	1646.5	1648.5	8	96	24		
	2695	BOUL	45 C	1647.5	1648.5	2.5D	109	36		
	2800	OTTA	21 GRF	1720	1820	420 D	68			
	2695	BOUL	28 PRE	1736 E	1756.5	20.5D	44	15		
	2695	SGMR	47 S	1748	1805	100	162	49		5
	8800	SGMR	3 S	1755.8	1811.4	92.2	50	15		5
	2800	OTTA	4 S/F	1755	1804.6	23	95	45		
	2695	BOUL	40 F	1756.5	1806	19	172	57		
	2695	BOUL	29 PBI	1816	1816	35 U	76	25		
	2800	OTTA	4 S/F	1848.5	1849	2	15.2	7.6		
	2800	OTTA	1 S	1935	1935.6	2	2.4	.8		
	2695	PENT	40 F	2001	2010	11	2.2			
	2800	OTTA	1 S	2104	2104.7	1.2	2.6	1.3		
	2800	OTTA	21 GRF	2115	2230	165	21	12.8		
	2695	PENT	1 S	2117	2116	2	2.6	1.3		
	8800	SGMR	3 S	2128	2129.7	9.3	87	34.8		5
	2800	OTTA	46F C	2128.5	2130	9	44.2	11		
	2695	SGMR	3 S	2128.6	2130	11.4	25	10		5
	2695	BOUL	42 SER	2129 E	2131	6.5U	47	16		
	2800	OTTA	4 S/F	2144	2148	6	30	14		
	2695	BOUL	3 S	2148 E	2149	2.5D	31	10		
	2695	PENT	4 S/F	2156	2202	11	30	9.2		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695	BOUL	45 C	2202 E	2205	3.5D	63	21		
	2695	PENT	4 S/F	2213.5	2216.5	13	188	25.4		
	2695	BOUL	4 SF	2216 E	2217	3.5D	230	77		
	2695	MANI	4 S/F	2345.4	2346.5	9.8	70.4	46.9		I
	2695	PENT	46F C	2345	2346.7	9	75.6	17		
	2695	BOUL	45 C	2346.5E	2347.5	7.5D	119	40		
21	8400	BERN	4	0930.3	0933.4	14	283			4R
	8400	BERN	4	1022	1215.5	128	49			
	2800	OTTA	21 GRF	1358		132	13.2			
	8400	BERN	4	1411.1	1420.2	100	206			3R
	8800	SGMR	3 S	1415.1	1420.1	20.1	288	86.4		SWF
	2695	SGMR	3 S	1417	1420.6	7	58.4	17.5		SWF
	8400	BERN	3	1555.3	1556.8	21	348			4R
	8800	SGMR	47 GB	1556.2	1556.8	11.9	560	112		5,SWF
	2695	SGMR	3 S	1556.8	1557.3	11.4	250	50		5,SWF
	2800	OTTA	3 S	1556	1557	3	178	55		
	2695	BOUL	45 C	1557 E	1557.5	10 D	229	76		
	2800	OTTA	30 PBI	1559	1559	10	13.2	4.4		
	2800	OTTA	4 S/F	1600	1601	2	10.4	5.4		
	2800	OTTA	4 S/F	1605	1605.6	2	17	8		
	2800	OTTA	20 GRF	1622	1628	30	7	3		
	2800	OTTA	1 S	1751	1752.2	3	2.8	1.4		
	2800	OTTA	1 S	1840.5	1841.3	1.5	6.4	3		
	8800	SGMR	3 S.	1909.4	1912	8.5	160	48		
	2800	OTTA	1 S	1938	1943	10	3.8	1.9		
	2800	OTTA	21 GRF	1950	2059	225	13.8	6.9		
	8800	SGMR	3 S	2012.1	2017	5.5	167	33		
	2800	OTTA	1 S	2023.8	2024.3	1	2.2	1		
	2800	OTTA	1 S	2131.9	2132	1	3.4	1.7		
	2695	PENT	21 GRF	2245	2247	40	8.8	3		
	2695	PENT	1 S	2247.8	2248.5	2	3.8	1.9		
	2695	PENT	1 S	2357	2357.8	2	4.2	2		
22	2695	MANI	4 S/F	0504.3	0507.5	9.9	74.4	24.8		
	8800	MANI	4 S/F	0505.3	0507.5	6.9	266.5	103.1		
	2695	MANI	4 S/F	0657.8	0658.2	1.4	49	16.3		
	8400	BERN	46	0911	0914.2	13	96			17R
	8400	BERN	46	0911	0912.2	13	117			10R
	2695	MANI	3 S/F	0911.4	0912.3	1.6	65.4	39.4		
	8400	BERN	20	1110.8	1124.2	55	42			OPR
	8800	SGMR	3 S	1252.3	1253.6	2.3	136	21.2		CONT,SWF
	2800	OTTA	4 S/F	1252.5	1253.8	4	55	19.2		
	2695	SGMR	3 S	1252.7	1254.1	6.3	73.6	14.7		CONT,SWF
	2800	OTTA	21 GRF	1320	1340	35	8.2	4.2		
	2800	OTTA	1 S	1400.5	1401	1.5	3.8	1.9		
	2800	OTTA	20 GRF	1510	1515	12	2.8	1.6		
	2800	OTTA	3 S	1531	1534.6	9	18.6	6.2		
	8800	SGMR	3 S	1533.3	1535	6.7	66.5	26.6		CONT,SWF
	2695	SGMR	3 S	1533.4	1540	3.4	20	8		CONT,SWF
	2800	OTTA	22 GRF	1555	1602.5	15	9.8	3.4		
	2800	OTTA	45 C	1631	1636.5	9	85	19		
	2695	SGMR	3 S	1632	1637	9.6	80.3	32.1		CONT,SWF
	8800	SGMR	3 S	1632.4	1636.4	6.6	118	47.2		CONT,SWF
	2695	BOUL	45 C	1632.5E	1637.5	7.5D	92	31		
	2800	OTTA	29 PBI	1640	1640	15	4.8	2.4		
	2800	OTTA	21 GRF	1800	1810	90	7.2	3.6		
	8800	SGMR	3 S	1806.5	1809.5	8.5	33.7	13.5		CONT,SWF
	2800	OTTA	3 S	1857.2	1858.5	3.8	78	20		
	8800	SGMR	3 S	1857.5	1858.3	4.5	194	77.6		CONT,SWF
	2695	SGMR	3 S	1857.5	1858.8	5.5	73.8	29.5		CONT,SWF
	2695	BOUL	45 C	1858 E	1859.5	3.5D	81	27		
	2800	OTTA	29 PBI	1901	1901	28	4.8	2.4		
	2800	OTTA	26A FAL	2000	2120	80	-10.4	-5.2		
	2800	OTTA	1 S	2109	2109.5	1	6.8	2.3		
	2695	PENT	1 S	2224	2225	2	4.2	1.4		
23	8800	SGMR	3 S	1450.7	1451	2.3	101	20.2		SWF
	2800	OTTA	26 FAL	1900	1920	20	-2.6	-1.3		
	2800	OTTA	20 GRF	1935	1943	15	3.8	1.9		
	2800	OTTA	20 GRF	2033	2037	12	2.8	1.4		
24	8400	BERN	3	1546.6	1547.7	3	21			
	2800	OTTA	1 S	2139.2	2140	1	2.6	1.3		
25	2695	MANI	4 S/F	0640.4	0655.2	21.6	63.2	42.1		
	2695	MANI	4 S/F	0711	0719	18.2	110.6	73.7		
	8400	BERN	3	0842.6	0843.1	5	26			OPR
	2800	OTTA	8 S	1428	1428.3	.5	2.2	1.1		
	2800	OTTA	1 S	1500.5	1501.2	1.5	1	.5		
	2800	OTTA	8 S	1509.8	1509.9	.2	2.4	1.2		
26	8800	SGMR	3 S	1840.5	1841.7	4.1	113 U	33.9U		
	2800	OTTA	4 S/F	1840.8	1842	5.2	30	12		
	2695	SGMR	3 S	1841.1	1842.5	7	31.5U	9.5U		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
FEBRUARY 1979

FEB 1979	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2695	BOUL	4 SF	1841.5E	1842.5	2.5D	27	9		
	2800	OTTA	26 GRF	1900	2040	240	6.6	3.3		
27	2800	OTTA	20 GRF	1633	1635	19	1.6	.8		
28	2695	PENT	8 S	0031.2	0031.7	.8	12.4	6.2		

Observatories:

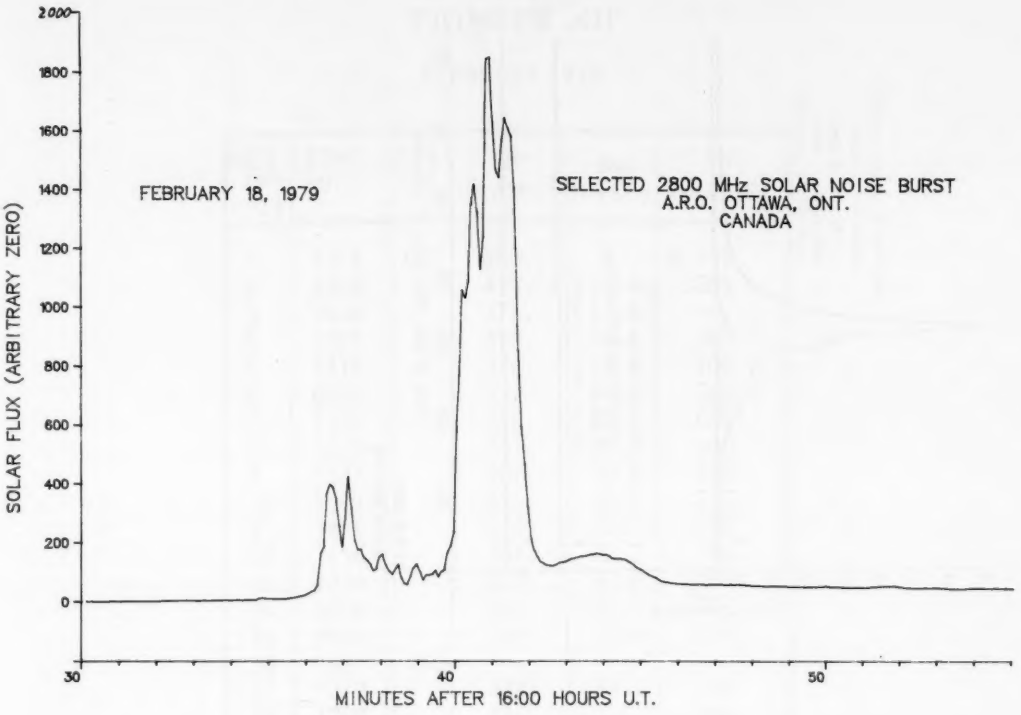
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

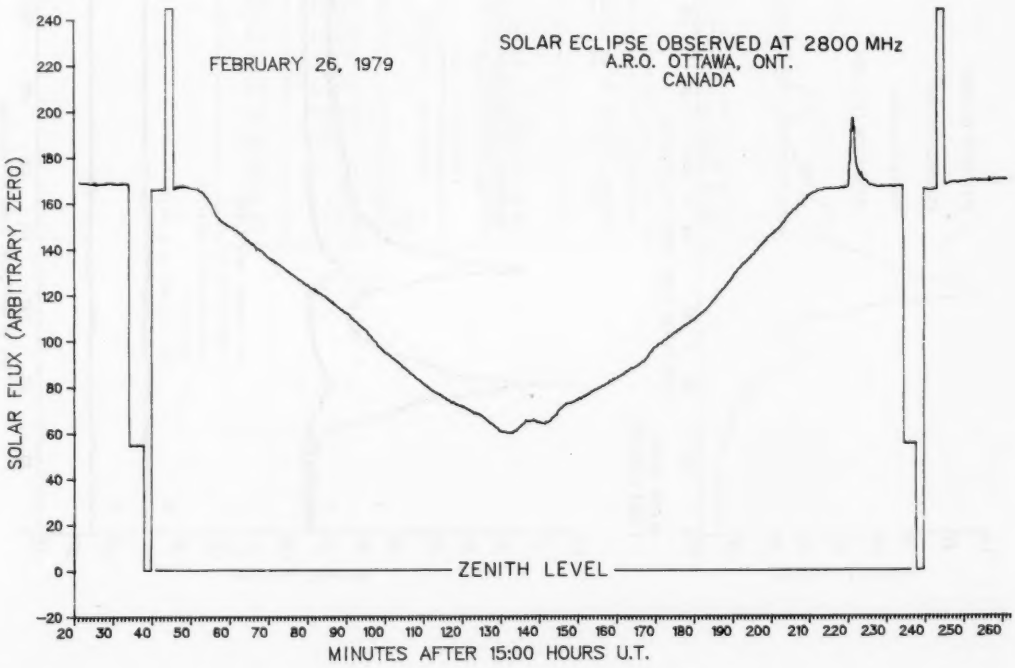
Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

SELECTED SOLAR NOISE BURST

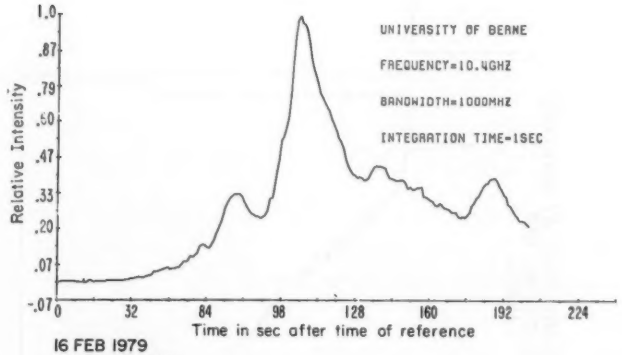
FEBRUARY 1979



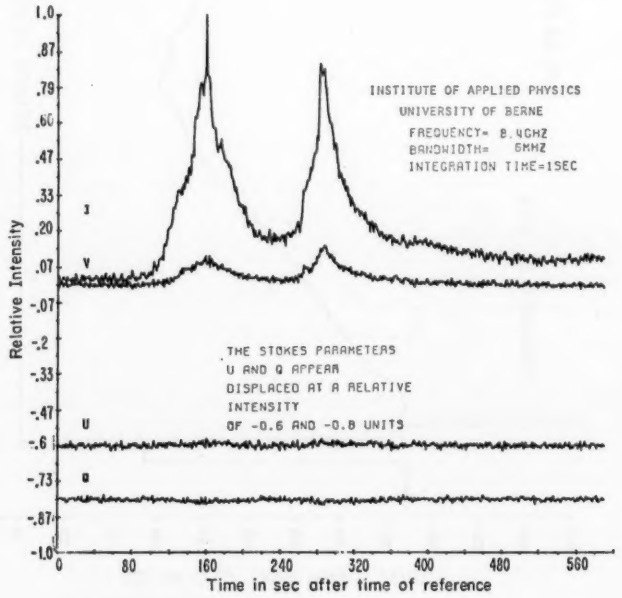


SELECTED SOLAR NOISE BURSTS

FEBRUARY 1979



16 FEB 1979
I UNIT = 376 SFU



22 FEB 1979 0909:30 UT
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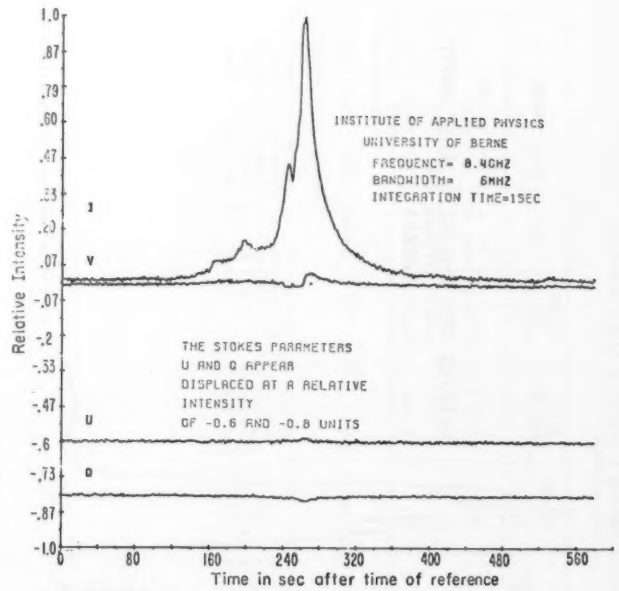


21 FEB 1979
I UNIT = 283 SFU

PIONEER XII

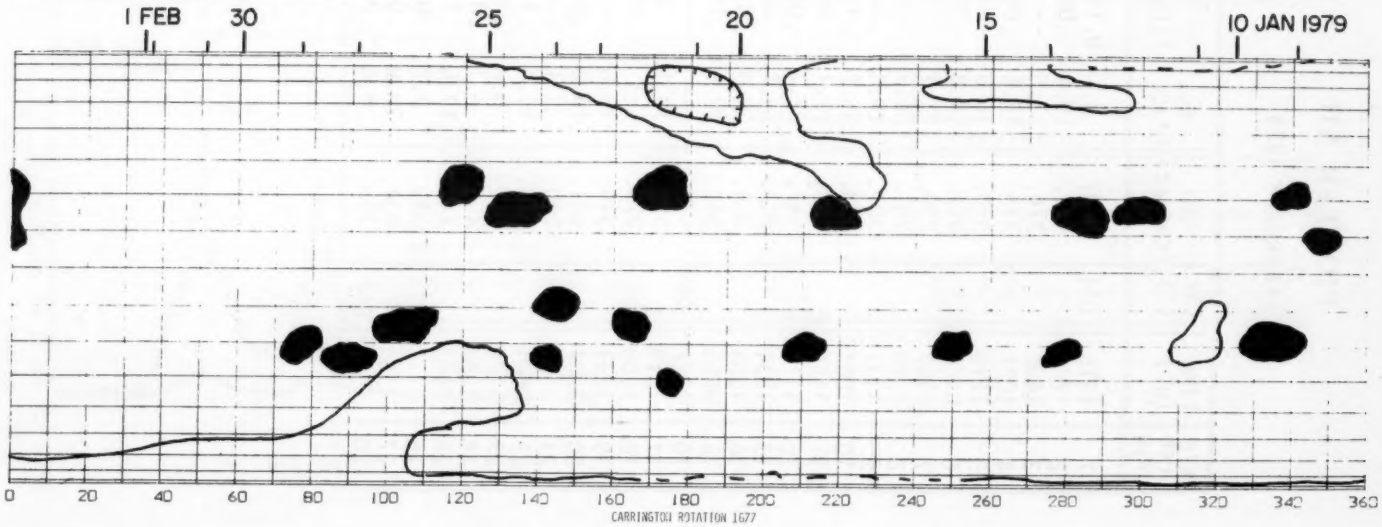
FEBRUARY 1979

DATE Feb '79	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} ($\times 10^6$°K)
1	1316	051	480.	8.	0.145
2	1224		417.	10.4	.089
3	1408		376.	11.8	----
4	1021		378.	18.6	.083
5	1216		370.	16.8	.108
6	0906		392.	14.8	.066
7	1152		298.	25.1	.085
8	1329		281.	25.3	.043
9	1137		307.	20.6	.033
10	1007		413.	35.2	.122
11	1456		329.	22.1	.092
12	1116		352.	22.7	.065
13	1234		283.	23.4	.064
14	1206		305.	39.9	.020
15	0655		349.	23.6	.159
16	1427	060	---	---	---
17	1219		332.	19.1	.126
18	1208		275.	---	.056
19	1241		344.	18.6	----
20	1007		381.	16.3	.047
21	1407		500.	9.1	.232
22	0901		523.	14.6	.315
23	1125		542.	9.2	.367
24	1202		485.	6.1	.074
25	0907		448.	12.5	.142
26	1111		349.	7.2	.030
27	1154		434.	28.9	.055
28	1311	067	393.	4.4	.033

HELIUM 10830Å SYNOPTIC MAPS

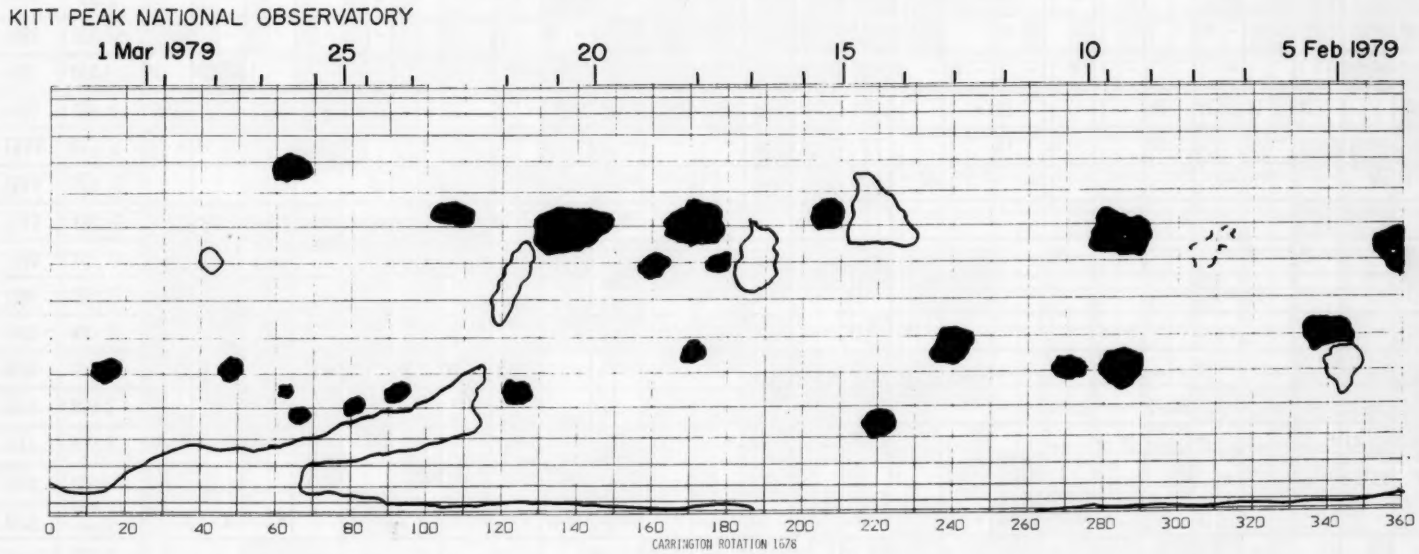
CARRINGTON ROTATION 1677

KITT PEAK NATIONAL OBSERVATORY



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1678



INFERRED IP MAGNETIC FIELD

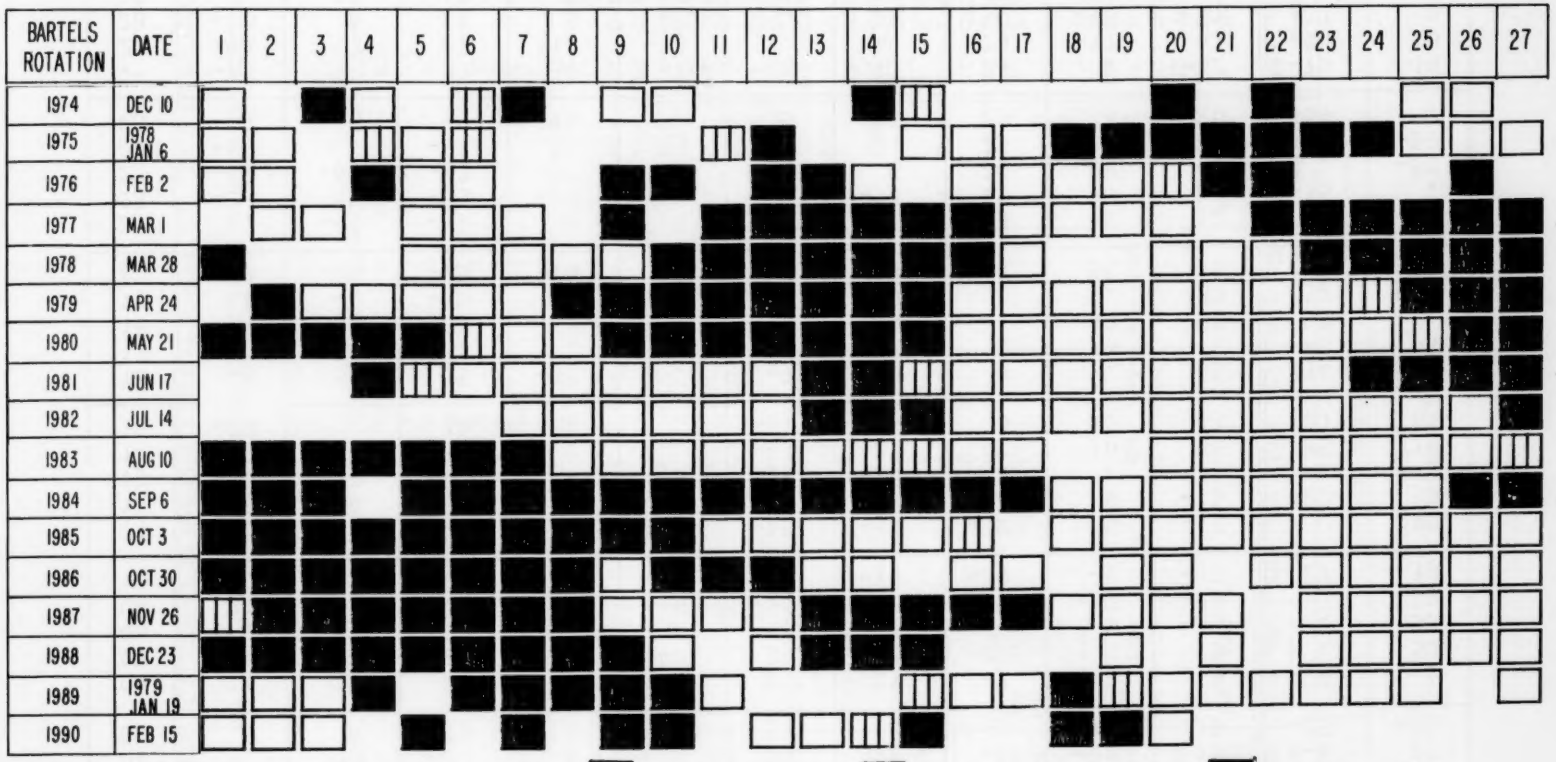
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1974	DEC 15				-	-	-		AT	-		AT			AT	AT		AT		TA		TA		TA			*	
1975	1978 JAN 11			*	*				*			*	*								TA		-	AT			-		-
1976	FEB 7						*	TA					-			-						-		*			TA	A*	TA	
1977	MAR 6	TA			-				AT			T*	*					TA			AT	AT		AT		AT		*	TA				
1978	APR 2							*	-		AT											AT	AT								
1979	APR 29		TA		*		TA	AT	AT	TA		-	-	T*						TA	TA			AT							
1980	MAY 26				TA			AT	AT				-			AT	TA					-					-		-	-	
1981	JUN 22	TA						A*					-	TA	TA	TA	AT			*				*	AT		AT	-		AT		
1982	JUL 19									TA								-	-		TA				AT		AT	*		TA		
1983	AUG 15					TA			AT		AT	AT										A*							TA		
1984	SEP 11				TA		AT			TA	T*						A*			—				—				A*	TA	-		
1985	OCT 8		*	TA				T*				—	—	—					TA		TA	—		AT			-					
1986	NOV 4			-				-	AT	-		-							*	AT		-		AT		AT		AT				
1987	DEC 1	AT		AT						-		-	TA		-		-	AT	-	TA	-		A*		-				-	AT	-		-
1988	DEC 28			-		-		-			-	AT	*		TA		TA	T*			-	AT	-		-	TA					-	TA		-
1989	1979 JAN 24			-			*		TA			TA			TA								*							AT		
1990	FEB 20		TA		-	TA	-				TA																					

▓ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1978										1979	
	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.
DAY												
01	.	52	-12	-28	1	40	26	-11	-18	-72	11	.
02	22	46	-34	-22	13	39	32	-20	-21	-39	.	-1
03	12	43	-27	-12	15	42	15	-14	-36	-7	15	30
04	.	13	-27	-5	18	39	18	-8	-28	17	-6	27
05	8	4	-29	6	24	31	2	-3	-19	19	-25	-13
06	11	-15	-27	5	43	29	-24	-7	-12	9	-26	1
07	4	-32	-23	21	42	30	-12	-20	3	5	.	50
08	.	-53	-12	33	36	17	-7	-29	-6	-15	.	88
09	-31	-52	3	41	16	-11	.	-37	-17	-26	.	59
10	.	-41	24	40	-11	-10	-35	-29	-3	-37	27	39
11	-70	-32	41	23	-17	-15	-34	-32	5	-19	.	40
12	-78	-4	50	12	-12	-22	-42	-14	9	-16	27	30
13	-56	22	47	8	-38	-33	-36	2	.	13	.	.
14	-49	.	30	0	.	-43	-27	7	16	31	45	78
15	-28	.	16	-24	.	-31	-26	8	20	43	21	62
16	-3	58	5	-38	.	-9	-36	9	.	65	36	27
17	18	37	1	.	.	5	-48	5	34	.	48	6
18	54	11	-29	.	.	13	-44	-1	42	59	59	.
19	48	-9	-49	.	.	7	-50	.	.	30	37	-52
20	24	-30	-75	-16	23	7	-33	4	55	18	18	.
21	.	-49	-79	0	21	5	-21	3	35	32	9	-86
22	-23	-50	-59	24	16	4	-14	19	40	27	-15	.
23	-49	-62	-37	51	6	-1	5	20	28	-3	.	-80
24	-69	.	-21	52	3	1	31	25	27	-20	-54	-52
25	-79	-13	-9	48	3	5	43	23	18	-26	-64	.
26	-73	10	1	30	-7	18	42	24	2	-32	-70	19
27	-53	13	27	12	-13	.	40	29	-17	-63	-64	10
28	-28	6	14	3	-6	.	29	30	-48	-51	-27	0
29	.	13	-10	-5	14	41	15	17	-61	-36	12	
30	.	18	-20	-10	27	41	2	-3	-65	-22	.	
31	.		-27		33	35		-16		-21	.	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

SOLAR WIND

Interplanetary Scintillations

FEBRUARY 1979

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	368	4	496	24							376	29			308	26
2	430	13														
3	407	20											288	5		
4	450	*	424	21			518	17			627	132	411	8	333	16
5	354	38	373	7	500	26	465	62			440	9	408	27	360	30
6	392	53														
7	312	35									384	3	398	17		
8			388	27							420	13	381	8		
9											481	53	344	21	366	10
10	373	10									507	66	408	6	422	24
11	533	16	504	13			500	26			492	7				
13	295	19					353	10							459	13
14	379	5	378	11			315	10			405	19				
15	365	9					310	4					442	21		
16	452	6					313	6					325	19		
17	456	20	342	37	405	25							344	4		
17	479	32														
18			529	10	487	8	385	17								
19	520	10					478	30								
21	446	8											635	42		
22	552	53	549	15												
23			600	8	688	36	631	10					659	9		
24	385	24	353	26			387	30					472	7		
25	474	85														
26	489	98	339	35			270	19								
27	435	20	376	123									361	79		
28	413	29	406	60			263	5					405	78		

FEBRUARY 5	UT	LAT	DIST	DLON
3C48	1.	1.	0.99	-16.
3C144	4.	-5.	1.20	-12.
3C147	4.	0.	1.20	-10.
3C161	6.	-12.	1.22	-8.
3C237	9.	-7.	1.29	3.
3C273	11.	-5.	1.22	11.
3C298	13.	-1.	1.12	14.
3C459	22.	10.	0.58	-52.

15	UT	LAT	DIST	DLON
	24.	2.	0.94	-19.
	4.	-6.	1.17	-13.
	3.	0.	1.16	-11.
	5.	-13.	1.20	-10.
	9.	-7.	1.30	1.
	11.	-5.	1.25	9.
	13.	-2.	1.16	13.
	21.	15.	0.43	-61.

25	UT	LAT	DIST	DLON
	23.	6.	0.87	-27.
	3.	-6.	1.12	-15.
	2.	0.	1.13	-13.
	5.	-14.	1.16	-12.
	8.	-7.	1.30	-1.
	10.	-6.	1.27	7.
	12.	-2.	1.20	11.
	21.	26.	0.28	-68.

NOTE:

*indicates data for which no error estimate is available since only two antennas were operating.

3C48 observed at 0 hr. U.T. before February 17th and at 23 hrs. U.T. after February 17.

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

FEBRUARY 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01	0830	West	Slow onset, weak SS
	0925	West	
02			Generally unsettled field throughout the day
	0930	West	Weak SS
03			Positive impulse H-Component of low latitude stations at 1820 UT. Field disturbed at mid and low latitude and at stations above the auroral oval until 2300 UT.
04	1000	West	
	1300		Beginning of a series of substorm injections lasting through 1835 UT. Major injections within network were at College at 1455 UT, 1525 UT, and 1555 UT.
05	0525	East	
	0955	West	1st of multiple onset
	1025	West	2nd of multiple onset
	1040	West	3rd of multiple onset
	1100	West	4th of multiple onset
06	0330	East	Slow onset
	1010	West	Moderate SS
	1230	West	Moderate SS
			Field unsettled at mid latitude and stations above auroral oval 1615-2300 UT.
	2140		Boulder in partial ring current sector
07	1205	West	Weak SS, slow onset
08	0950		SS moderate along oval stations, very little deflection among other network stations
	1545		Weak SS, slow onset
09	1455	West	
10			Field slightly unsettled, no distinct SS activity
11	0150		Positive impulse H-component of low and mid latitude stations. Ring current established through 0500 UT.
	0930	West	Weak SS
12	0515	East	
	0630	East	
	0740	West	1st of double onset
	0815	West	2nd of double onset
	1020	West	1st of multiple onset leading to strong total SS
	1040	West	2nd of multiple onset
	1110	West	3rd of multiple onset
	1215	West	SS in recovery phase
13			Quiet day
14			Quiet day
15	0845	West	Field unsettled 0700-1800 UT. No other distinct network SS activity.
16	0410	East	Weak SS
	1010	West	Weak SS
	1125	West	Weak SS
17	1010		Weak SS, response confined to oval stations.
18	0304		Sharp positive impulse H-component mid and low-latitude stations. Field disturbed balance of day.
	0835	∿ Center	
	1030	West	1st of multiple response
	1100	West	2nd of multiple response
	1125	West	3rd of multiple response
	1310	West	Weak SS
	1400	West	
19	0345	East	
	0425	East	
	0730	West	
	1010	West	Weak SS
	1240	West	Slow onset, 1st of double onset
	1330	West	Sharp onset, strong SS, 2nd of double onset
20	1030		Weak SS, localized Artic Village-Inuvik
	1200		Weak SS, localized Ft. Yukon-Inuvik
21	0302		Sudden positive impulse H-component mid and low latitude stations. Field disturbed balance of day. Ring current established 0440-1145 UT.
	0625	East	1st of multiple onset, strong total SS
	0650	∿ Center	2nd of multiple onset, strong total SS
	0715	West	3rd of multiple onset, strong total SS
	1549		Positive impulse H-component mid and low latitude stations. Ring current established 1810-2240 UT.
22	0040		SC - minor mag storm conditions 0530-1630 UT. Field remained disturbed through 23/1345 UT.
	0600	East	
	0735	West	Strong SS
	1010	West	Strong SS
23	0730	West	
	1145	West	Substorm in progress. Missing network data 0925-1145 UT.
24	0615		Substorm localized Rankin Inlet to Gillam
	0905	West	Substorm centered Inuvik-Norman Wells
	1255	West	
	1500		Slow onset
25	0525	East	1st of double onset
	0550	East	2nd of double onset
	0810	West	1st of double onset
	0830	West	2nd of double onset
	1145		
26	0325	East	Slow onset
			Numerous small substorms 0845-1900 UT.
	1030		Weak SS along Auroral oval
	1120	West	
	1345	West	
	1545		
27	0045	East	Abrupt discharge, strongest response at Lynn Lake
	0410	East	
	0725	Center	
	1035	West	Slow onset
	1400		
	1635		
28	0030	East	
	0810	West	Weak SS, field unsettled balance of day
	1505		1st of double onset, strong SS
	1555		2nd of double onset, weak injection
	1725		

SGD 415 Part I (Prompt)

JANUARY 1979 DATA

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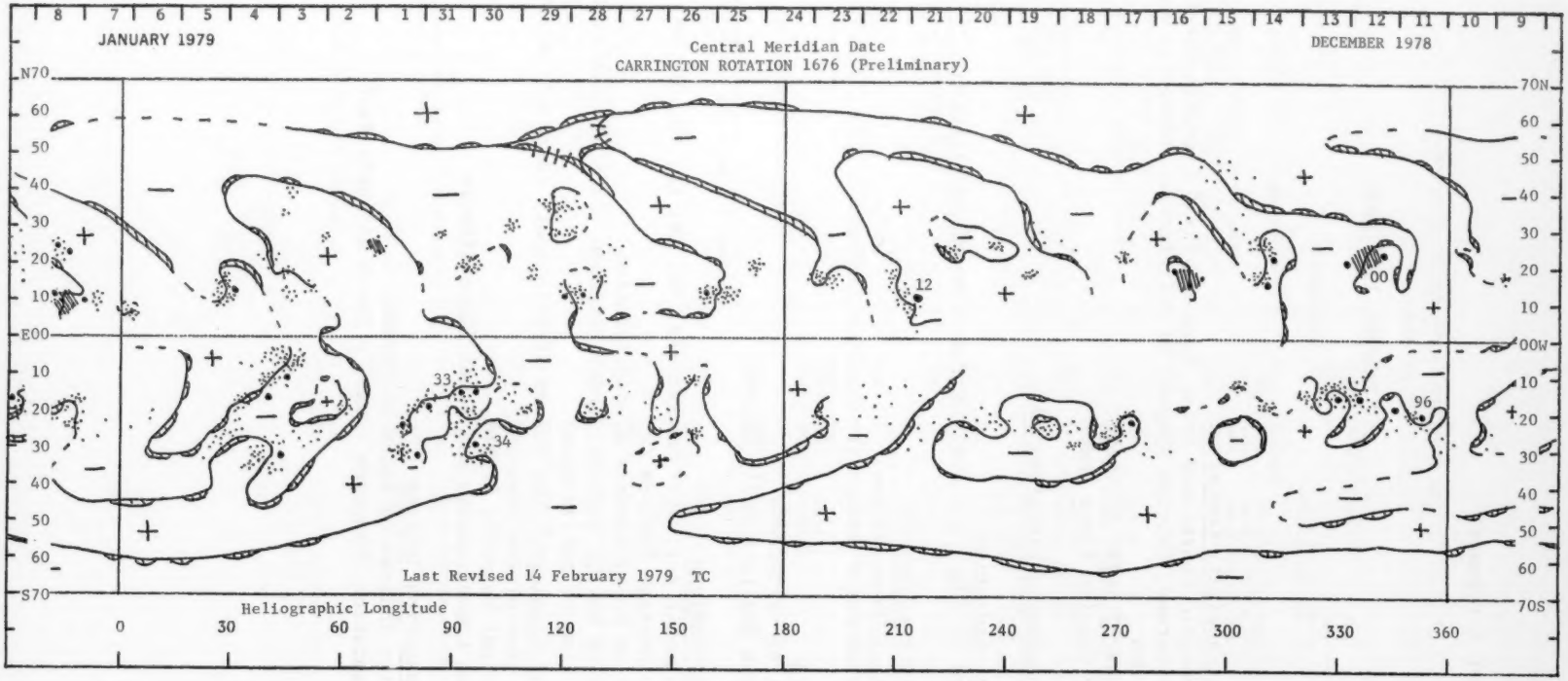
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1676 (PRELIMINARY)

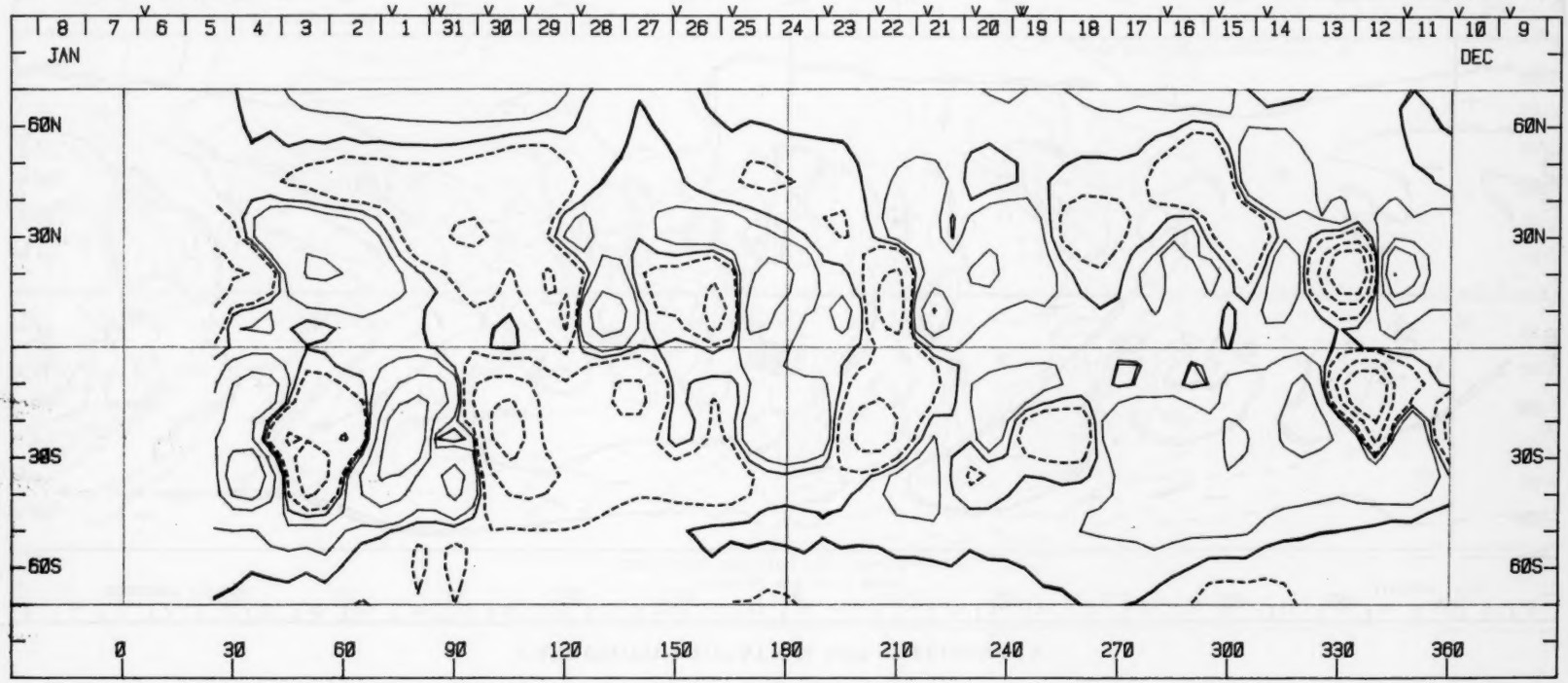


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1676

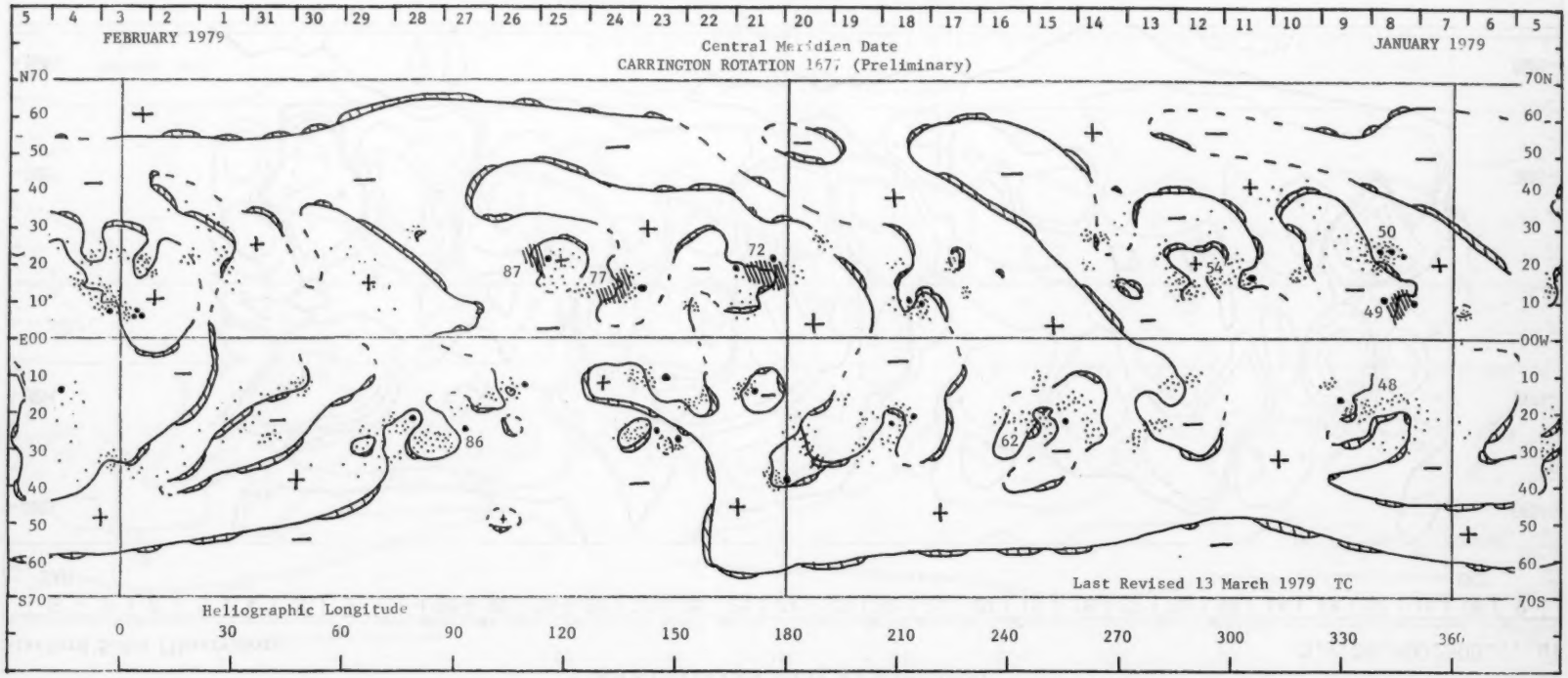
Stanford Solar Observatory

0.±100.200.500... μT



Hα SYNOPTIC CHART

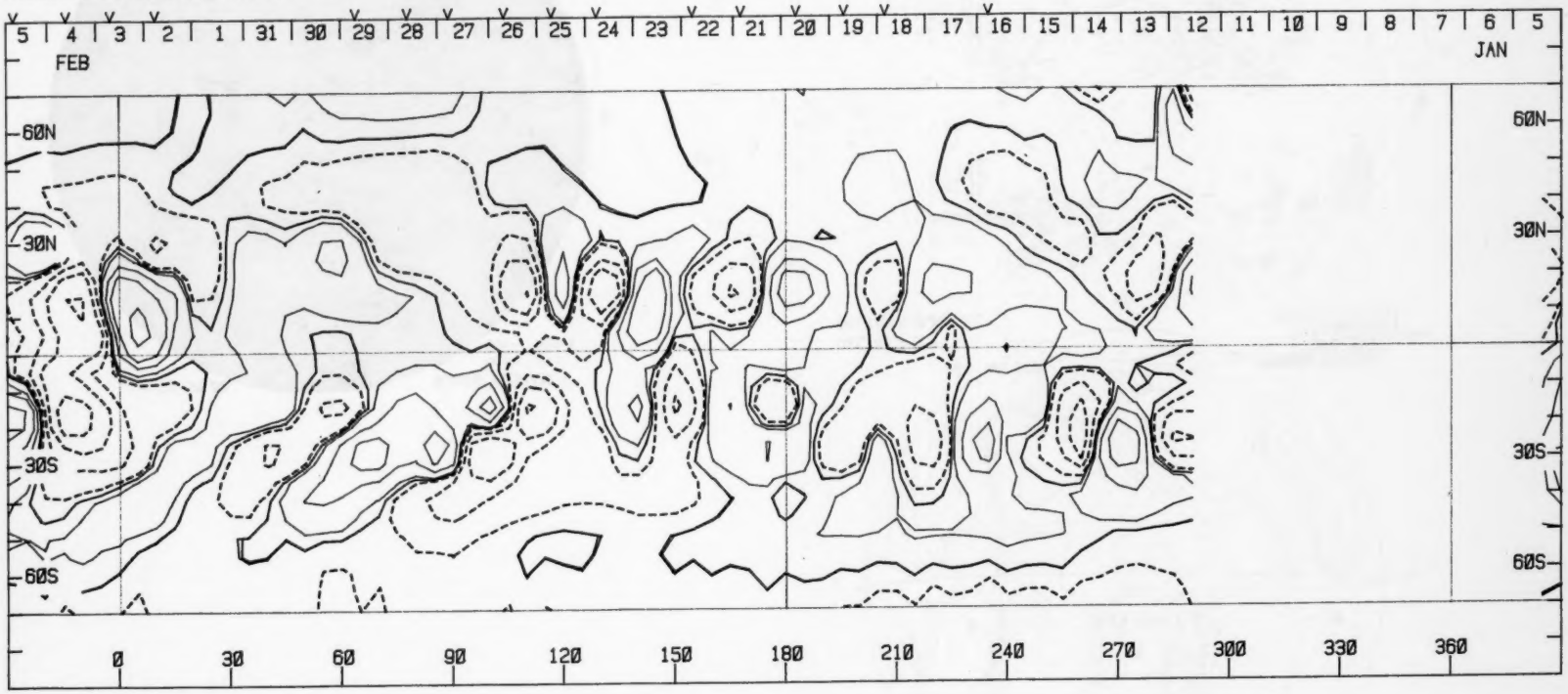
CARRINGTON ROTATION 1677 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1677

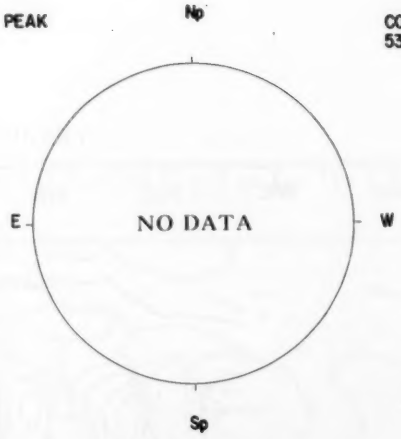
Stanford Solar Observatory

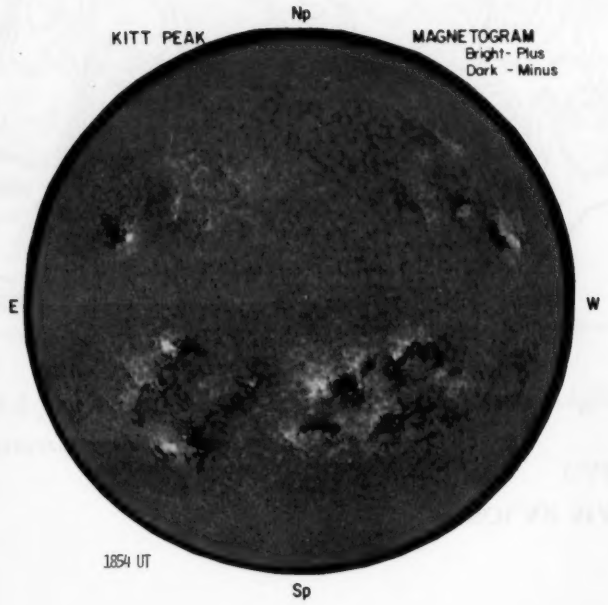
0,±100,200,500... μT

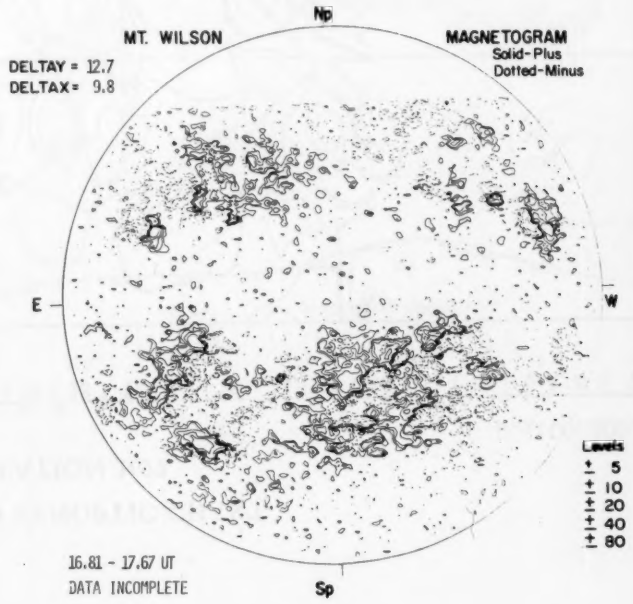


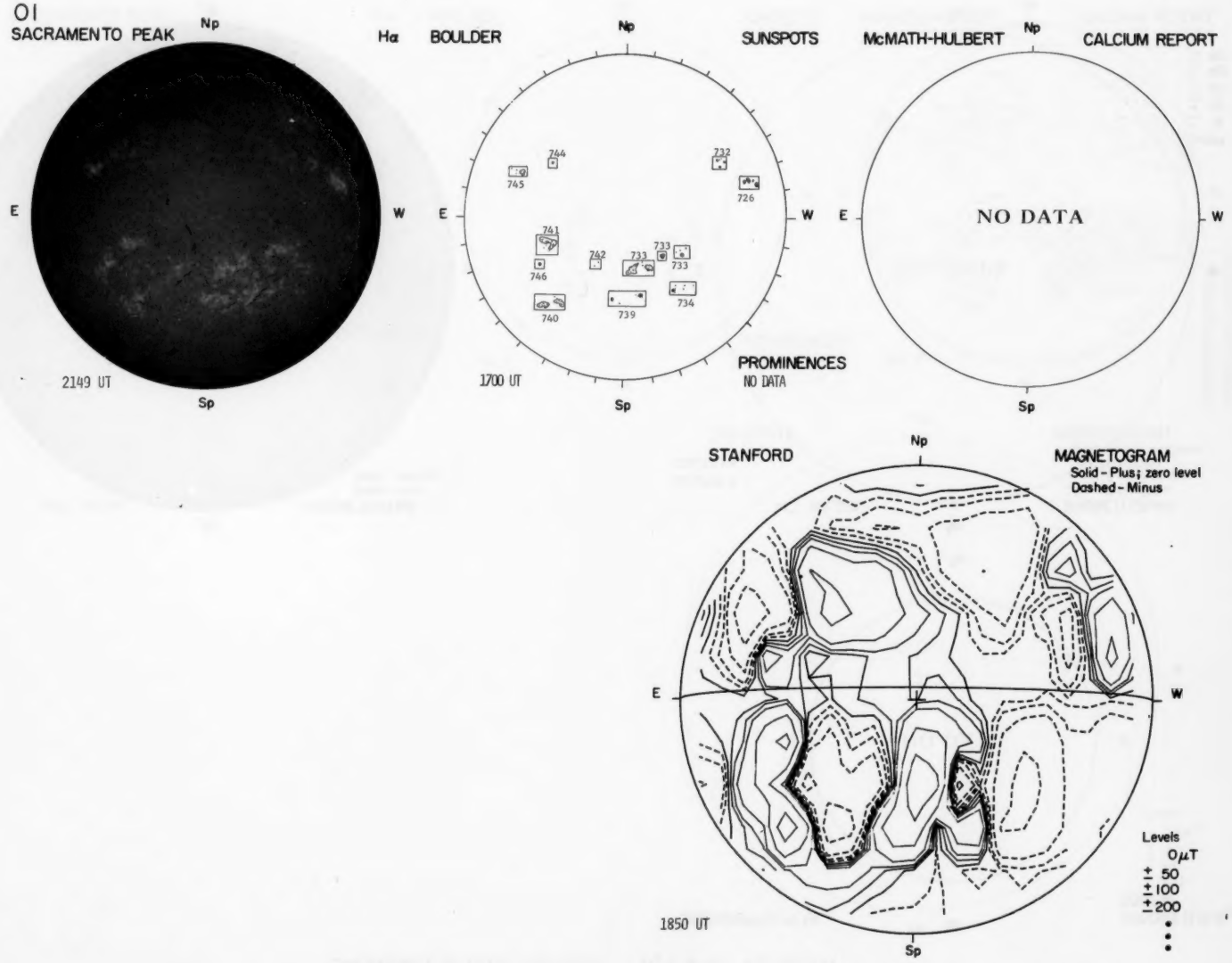
JANUARY 1, 1979 (P = 2.31, B_o = -3.00, L_o = 82.76)

SACRAMENTO PEAK








01
SACRAMENTO PEAK
Np
Hα
E
W
Sp
2149 UT
BOULDER
SUNSPOTS
744
745
732
726
741
742
733
733
733
746
740
739
734
1700 UT
PROMINENCES
NO DATA
McMATH-HULBERT
CALCIUM REPORT
NO DATA
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
1850 UT
Levels
0μT
±50
±100
±200

JANUARY 2, 1979 (P = 1.83, B_o = -3.12, L_o = 69.59)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1632 UT

Sp

MT. WILSON

Np

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

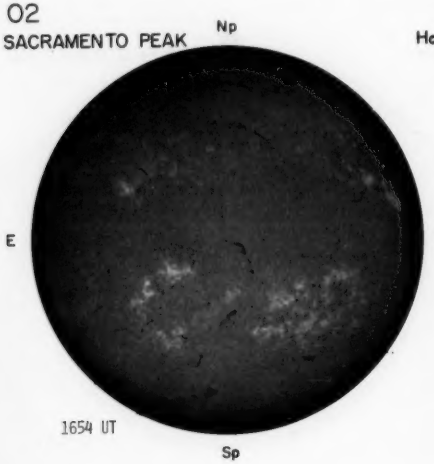
E — NO DATA — W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

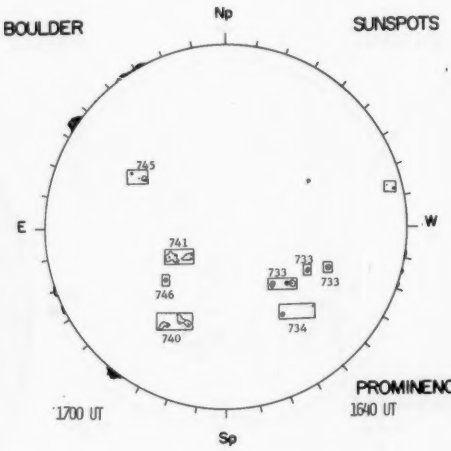
Sp

02

SACRAMENTO PEAK



Hα BOULDER

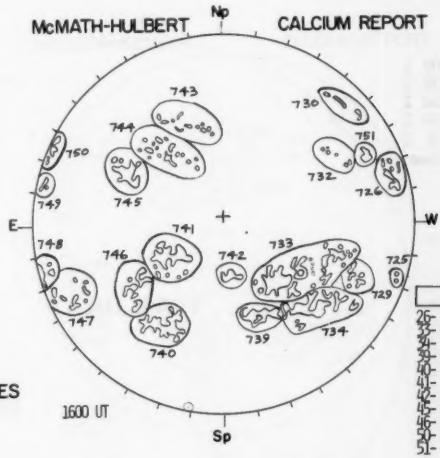


SUNSPOTS

PROMINENCES

1640 UT

McMATH-HULBERT CALCIUM REPORT



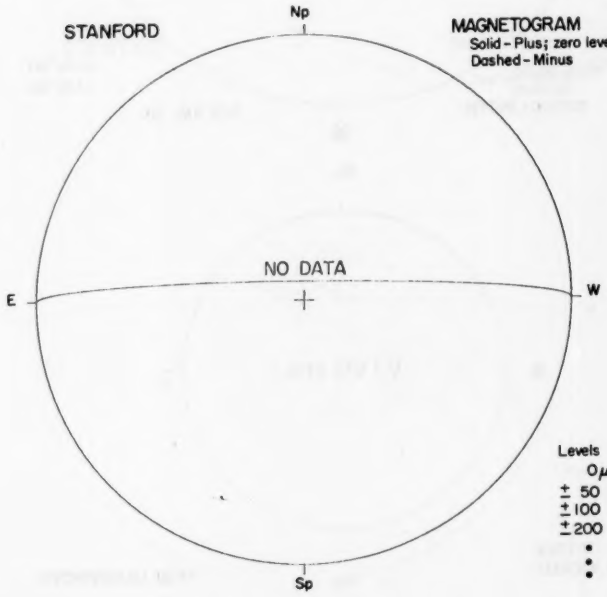
	FAIR	S
26-	2100	3.5
33-	0300	3.0
34-	0400	2.5
39-	1800	2.5
40-	2800	2.5
41-	2300	3.0
42-	0800	2.5
45-	1900	3.0
46-	1800	3.0
50-	1000	3.0
51-	0800	3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

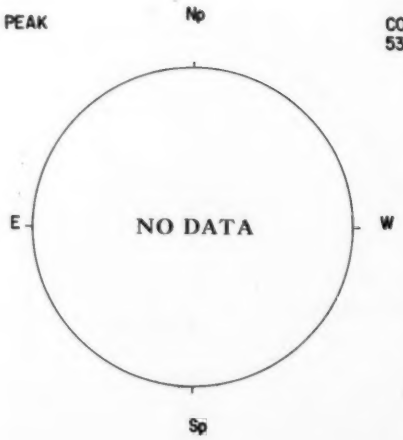
Dashed - Minus



JANUARY 3, 1979 (P = 1.34, B_o = -3.23, L_o = 56.42)

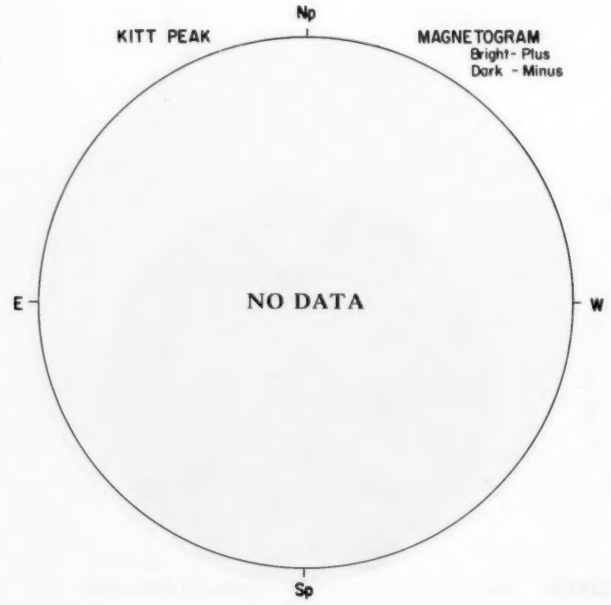
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

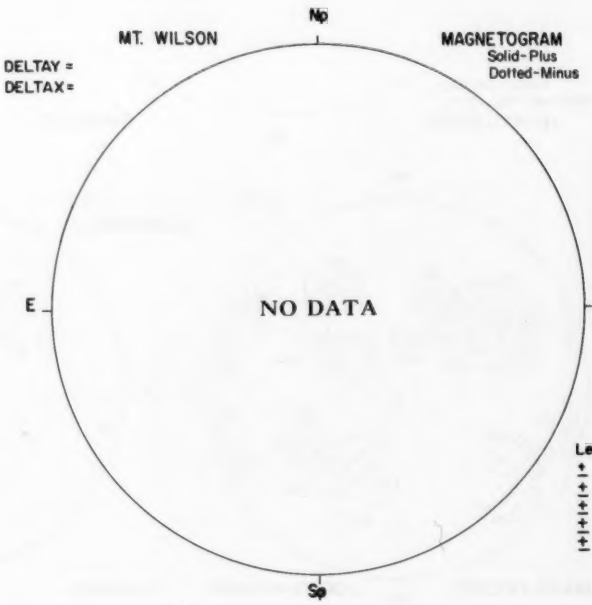
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus



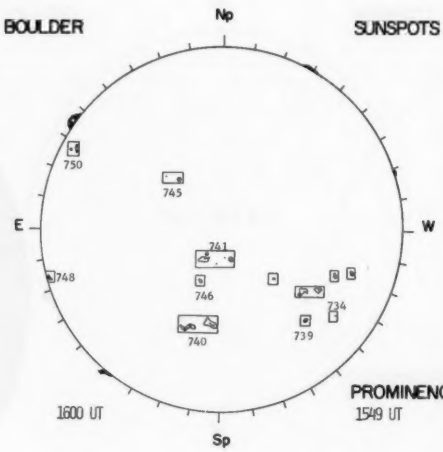
03

SACRAMENTO PEAK

2135 UT

Hα

BOULDER



1600 UT

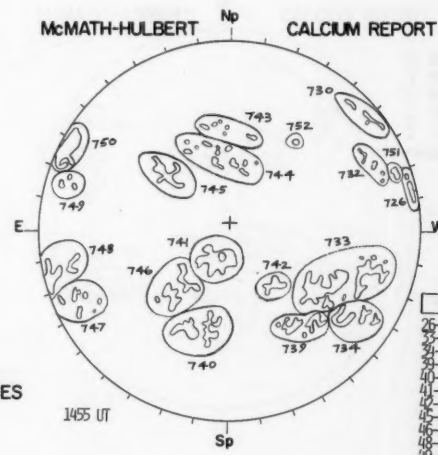
SUNSPOTS

PROMINENCES

1549 UT

McMATH-HULBERT

CALCIUM REPORT



1455 UT

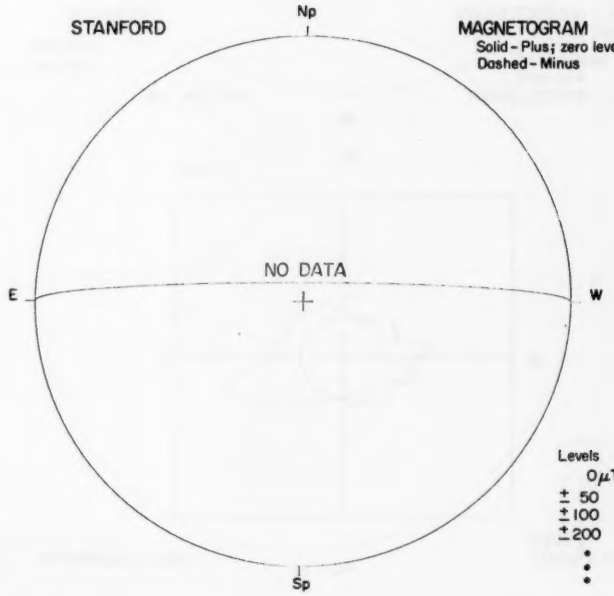
POOR	S
26-	1800-2.5
33-	6500-3.0
34-	2200-2.5
39-	2100-2.5
40-	3400-3.0
41-	2800-3.0
42-	1100-2.5
45-	1800-3.0
46-	2100-2.5
48-	1200-3.0
50-	800-3.0
50-	4000-2.5
51-	1100-3.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



57

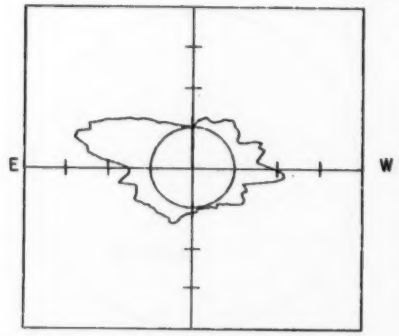
Jan 79

JANUARY 4, 1979 (P = 0.85, B_0 = -3.35, L_0 = 43.25)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



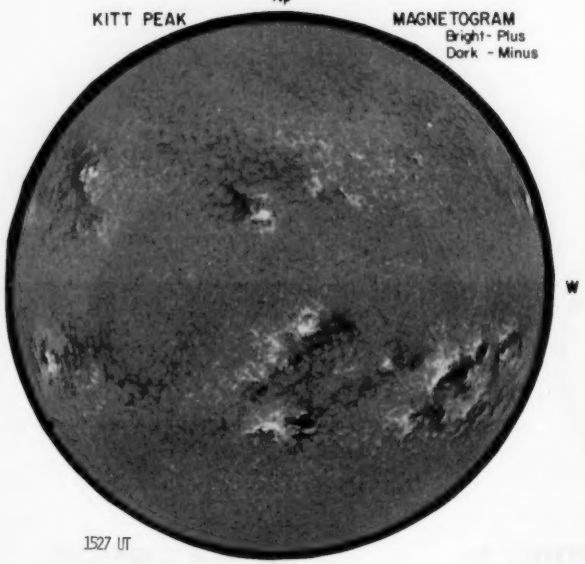
2256 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1527 UT

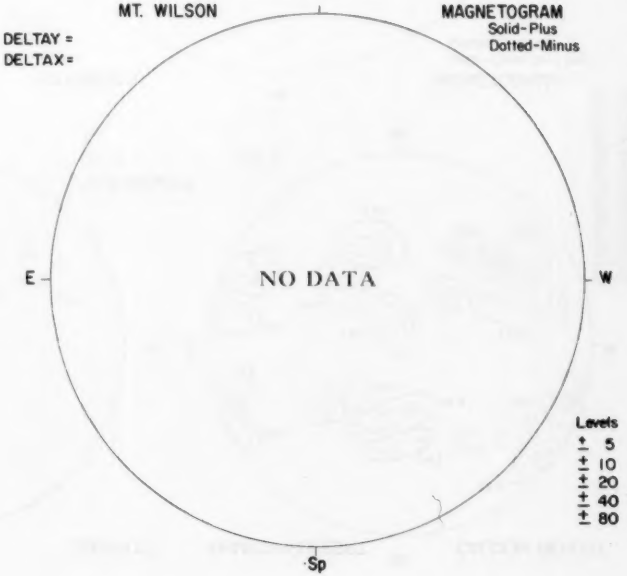
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

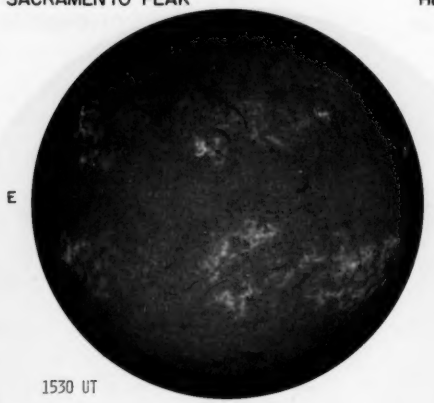


Sp

04

SACRAMENTO PEAK Np

Hα



1530 UT

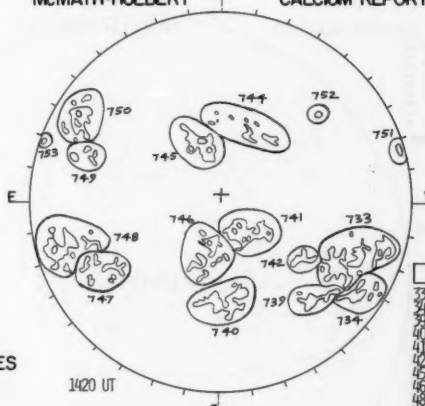
BOULDER Np

SUNSPOTS

PROMINENCES

McMATH-HULBERT Np

CALCIUM REPORT



1420 UT

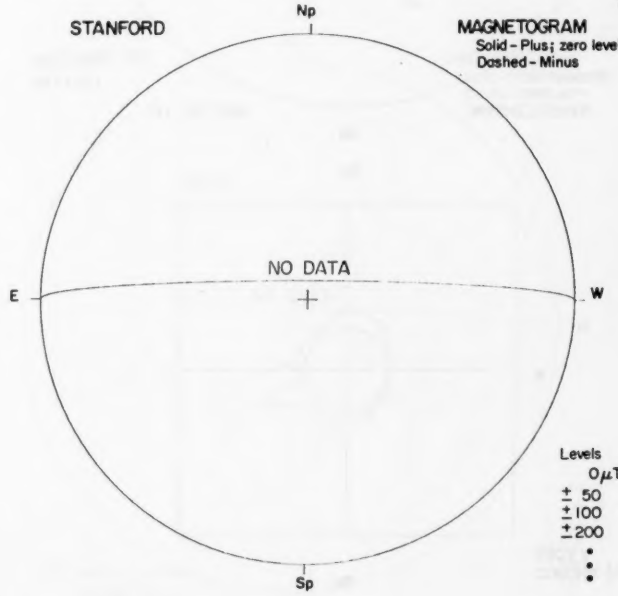
	POOR	D
3-	6100	3.0
	3000	3.0
	2000	2.5
	2400	2.5
	3000	2.5
	3000	2.5
	800	2.5
	2200	2.5
	2400	2.5
	4800	3.0
	900	3.0
51-	1000	2.5
	1000	3.0

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0μT

± 50

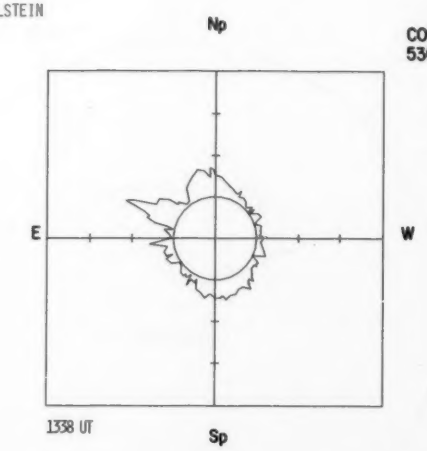
± 100

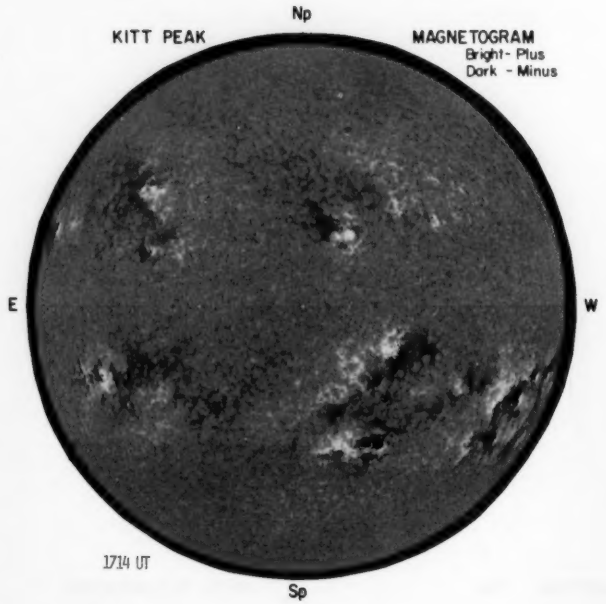
± 200

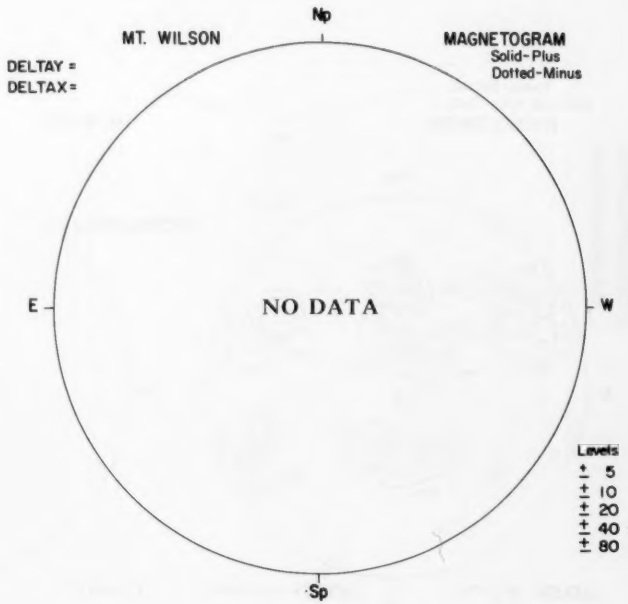
• • •

JANUARY 5, 1979 (P = 0.37, B_o = -3.46, L_o = 30.08)

WENDELSTEIN

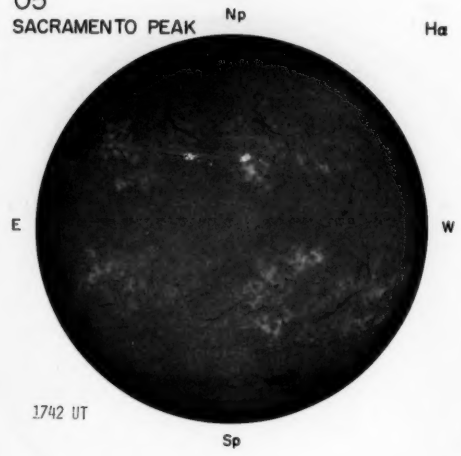






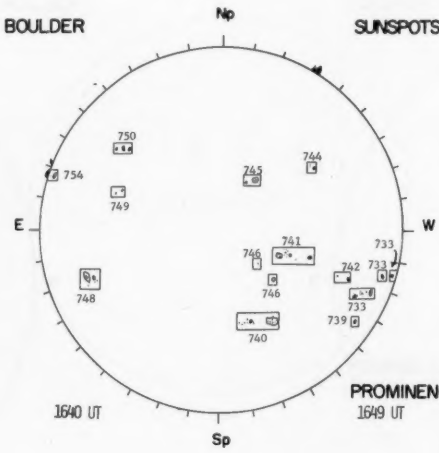
05

SACRAMENTO PEAK



1742 UT

Hα BOULDER



1640 UT

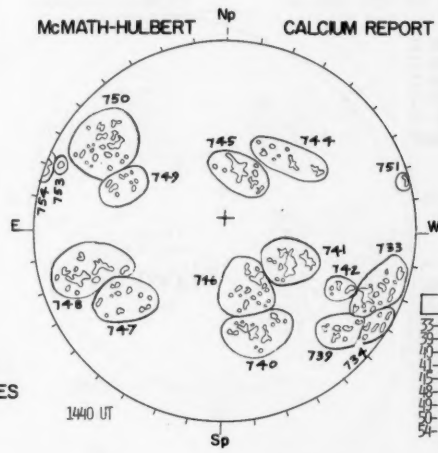
SUNSPOTS

PROMINENCES

1649 UT

McMATH-HULBERT

CALCIUM REPORT



1440 UT

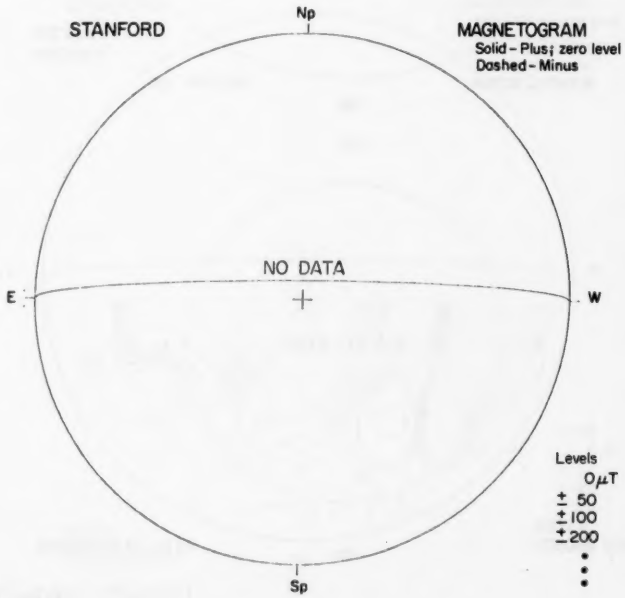
	POOR	D
33-	4800	3.0
39-	1600	2.5
45-	2600	3.0
41-	2500	2.5
45-	2200	2.5
48-	1200	3.0
40-	0800	3.0
50-	3600	2.5
54-	1200	3.0

STANFORD

MAGNETOGRAM

Solid – Plus; zero level

Dashed – Minus

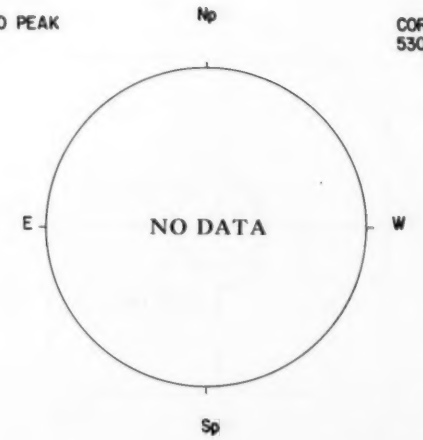


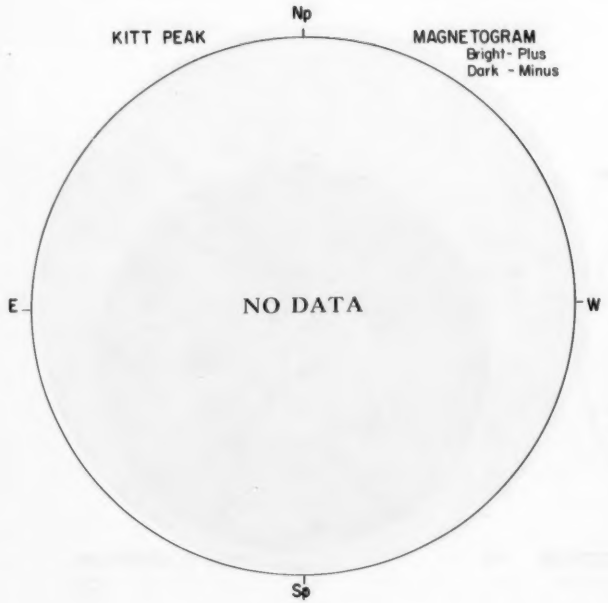
61

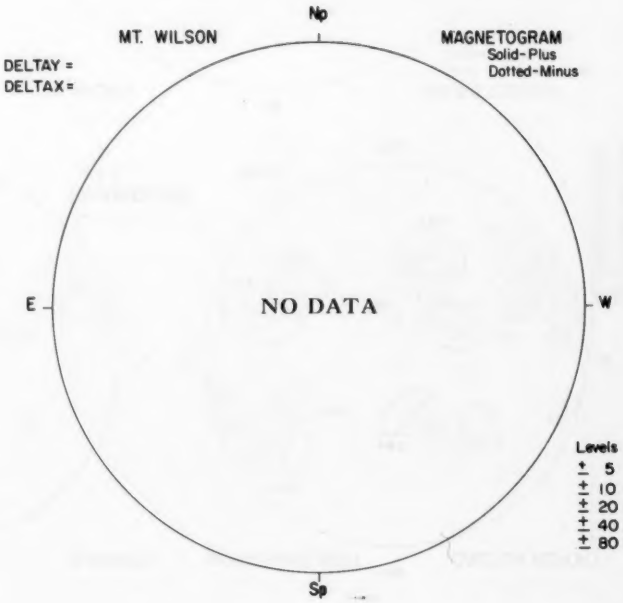
Jan 79

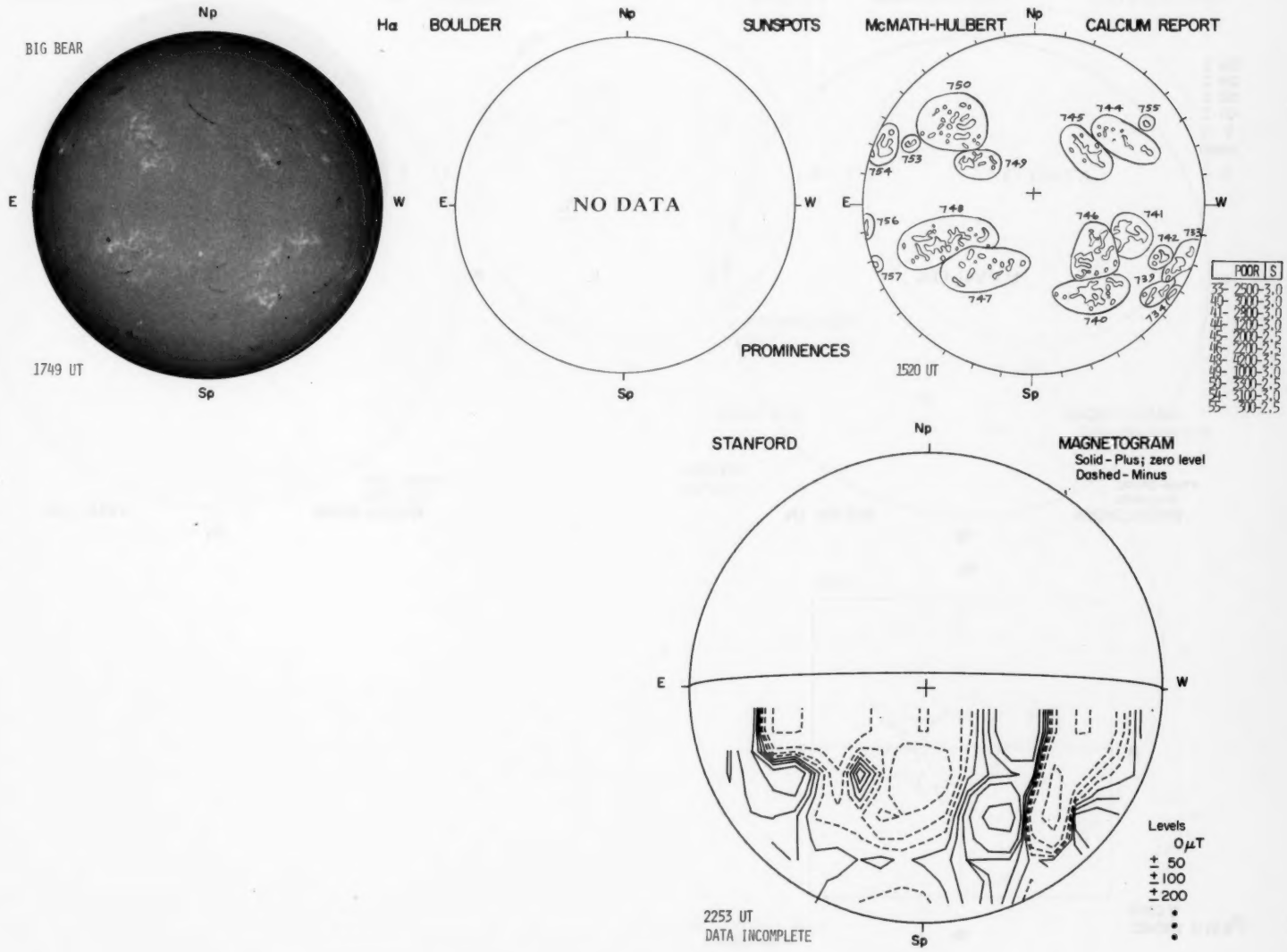
JANUARY 6, 1979 (P =-0.12, B_o =-3.57, L_o = 16.91)

SACRAMENTO PEAK



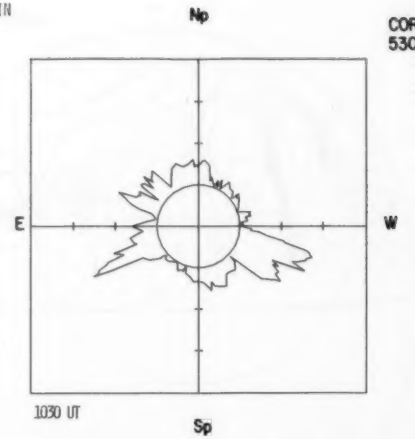


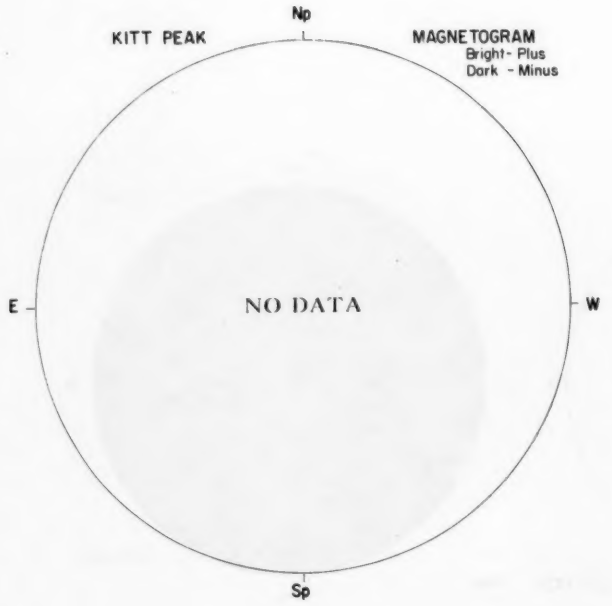


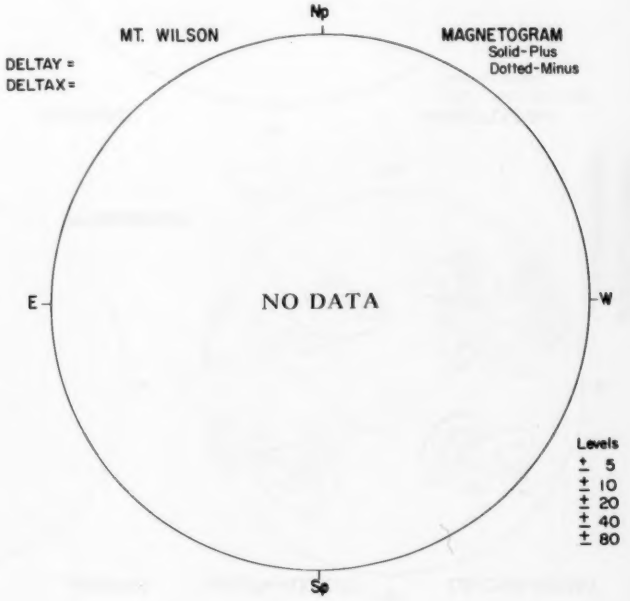

BIG BEAR
Hα
1749 UT
BOULDER
SUNSPOTS
NO DATA
PROMINENCES
McMATH-HULBERT
CALCIUM REPORT
1520 UT
POOR
S
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
2253 UT
DATA INCOMPLETE
Levels
0μT
± 50
±100
±200
Np
Sp
E
W

JANUARY 7, 1979 (P =-0.60, B_0 =-3.68, L_0 = 3.74)

WENDELSTEIN

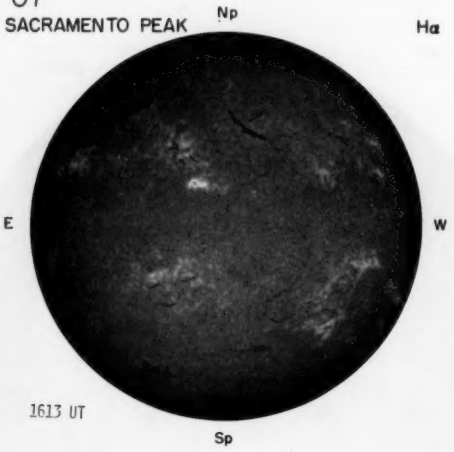




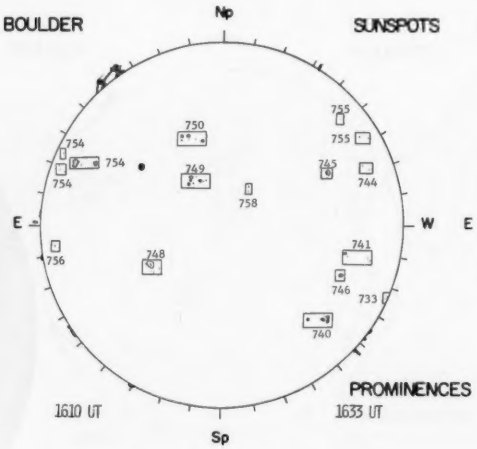


07

SACRAMENTO PEAK



Hα BOULDER



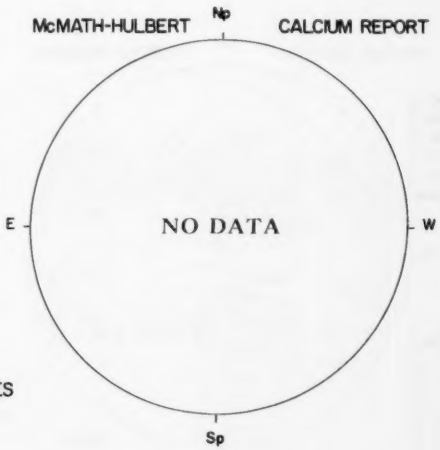
SUNSPOTS

PROMINENCES

1633 UT

McMATH-HULBERT

CALCIUM REPORT

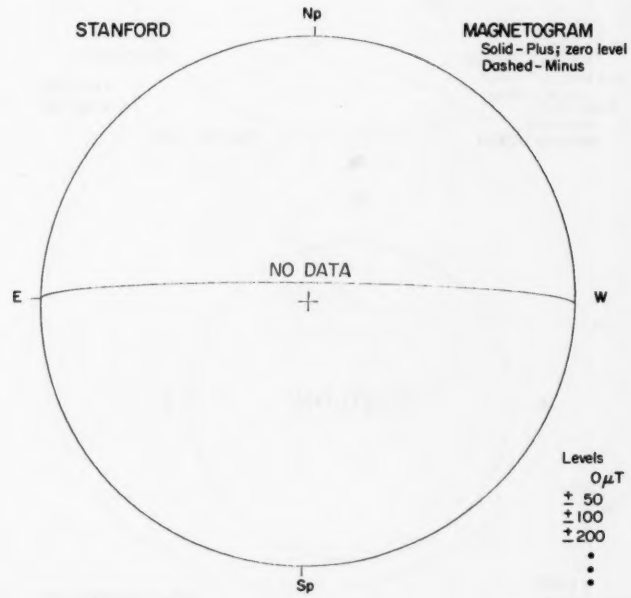


STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



JANUARY 8, 1979 (P = -1.08, B_o = -3.80, L_o = 350.57)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1623 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

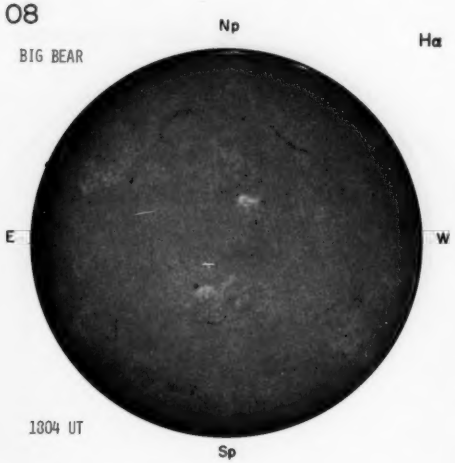
DELTAY =
DELTAX =

E — NO DATA — W

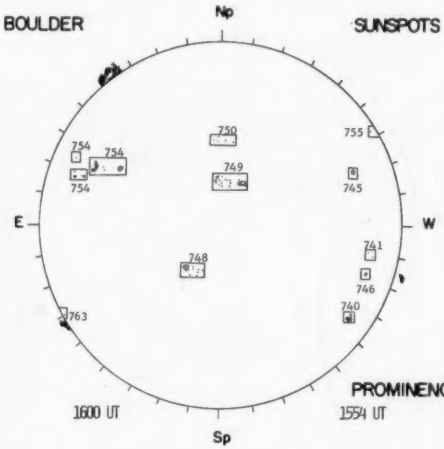
Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

08

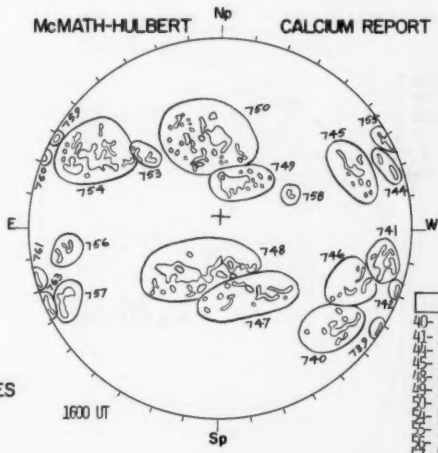


Hα BOULDER SUNSPOTS



PROMINENCES 1554 UT

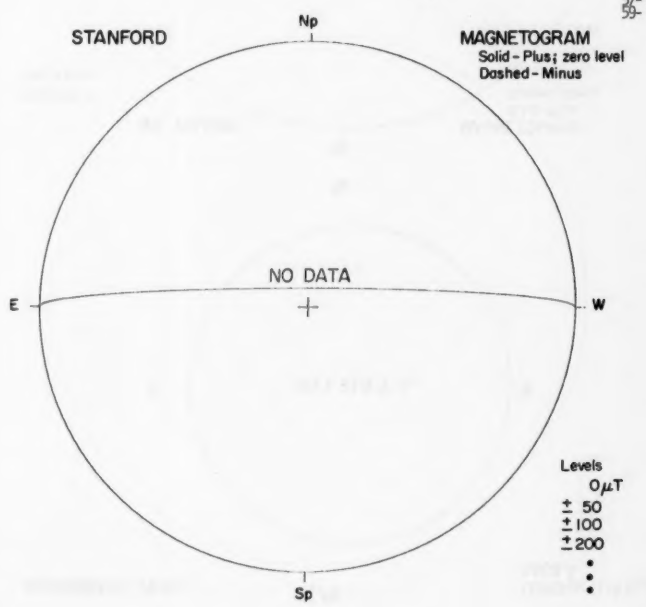
McMATH-HULBERT CALCIUM REPORT



FAIR	S
40- 2600	2.5
41- 2800	2.5
44- 1200	3.0
45- 1800	2.5
48- 1400	3.0
49- 1900	3.0
50- 2200	2.5
54- 900	3.0
55- 1000	2.5
56- 1000	3.0
57- 2000	3.5
59- 500	2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

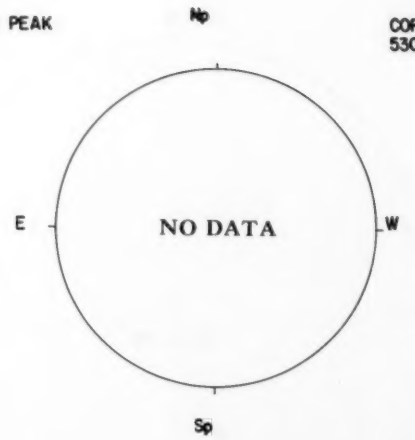


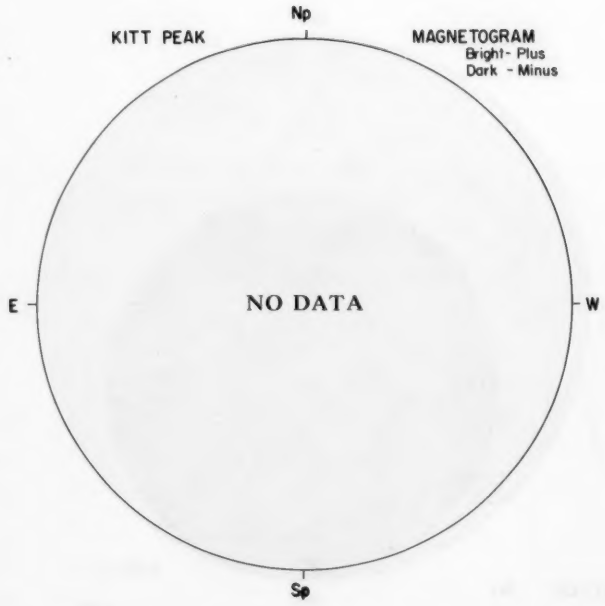
67
Jan 79

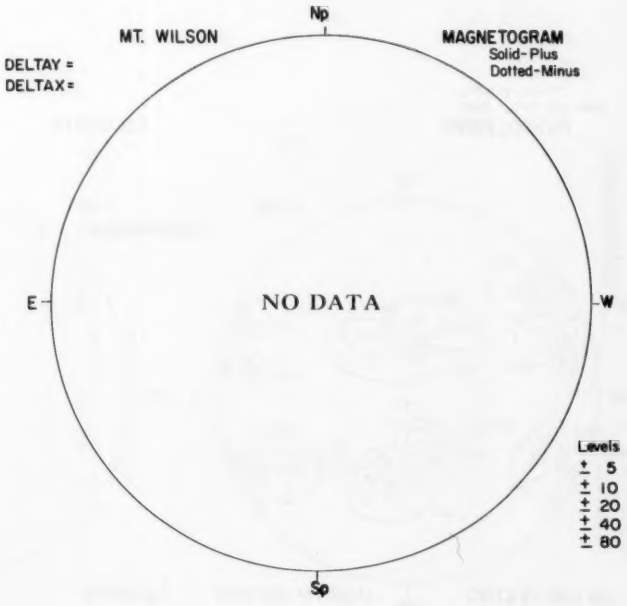
JANUARY 9, 1979 (P =-1.57, B_o =-3.90, L_o =337.40)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

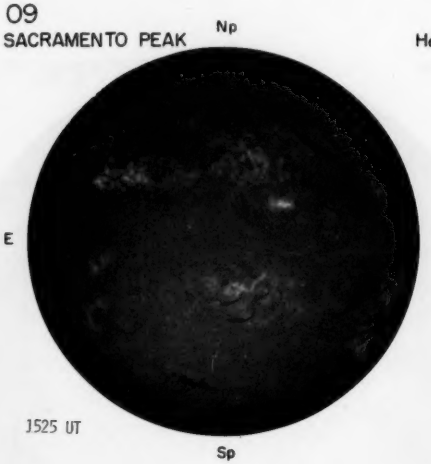




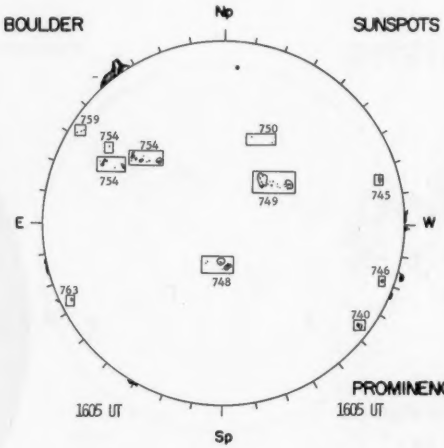


09

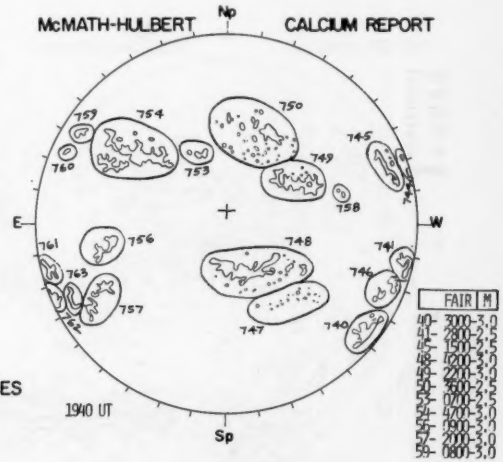
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



PROMINENCES

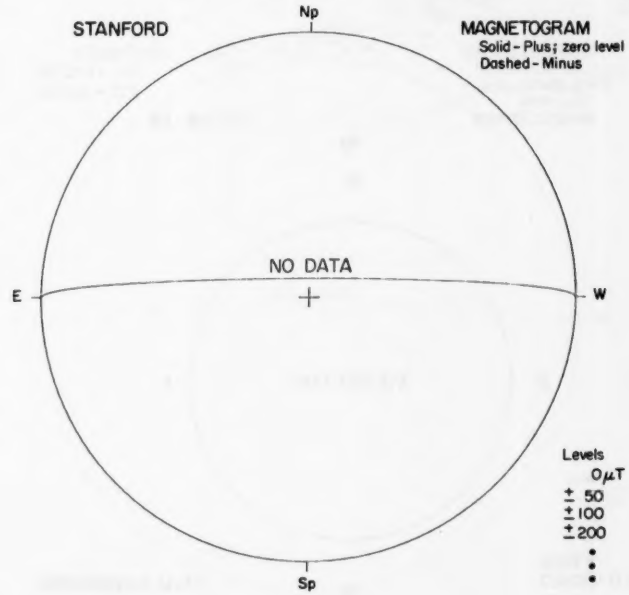
1605 UT

McMATH-HULBERT CALCIUM REPORT

1940 UT

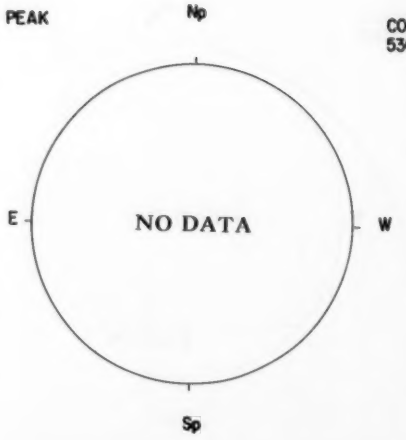
STANFORD MAGNETOGRAM

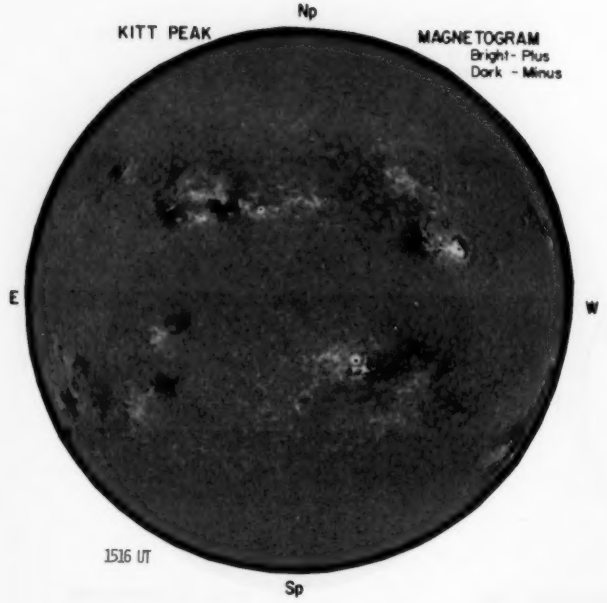
Solid - Plus; zero level
Dashed - Minus

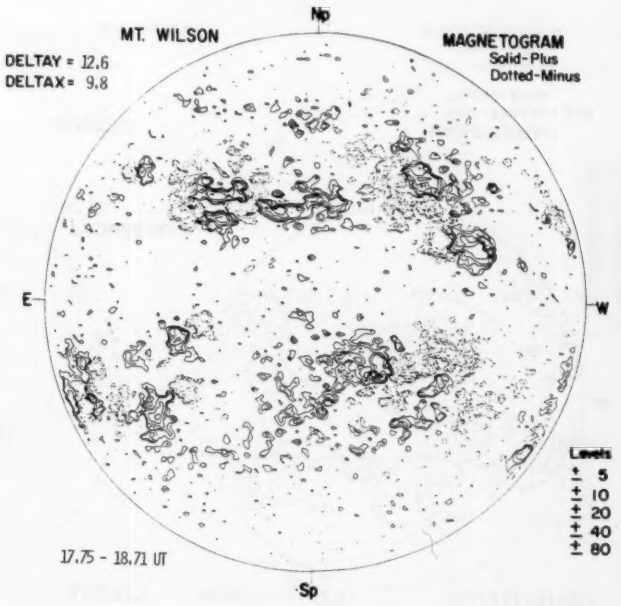


JANUARY 10, 1979 (P =-2.05, B_o =-4.01, L_o = 324.23)

SACRAMENTO PEAK

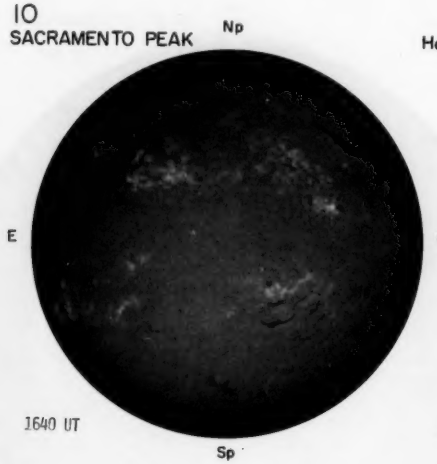




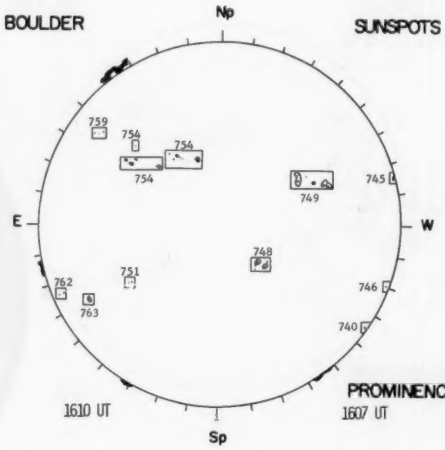


10

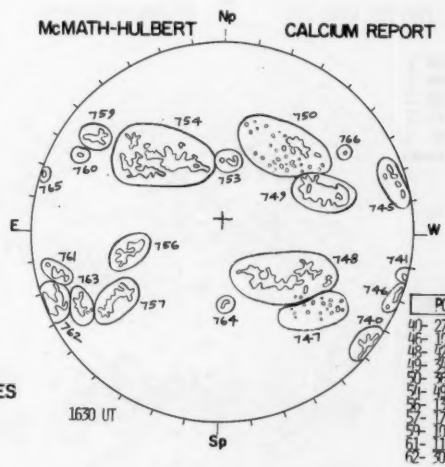
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



McMATH-HULBERT

CALCIUM REPORT

POOR	M
2700	3.0
1000	2.5
2000	3.0
2200	3.0
3000	3.0
1400	2.5
1300	3.0
1700	3.0
1000	3.0
1100	2.5
3000	3.0

PROMINENCES

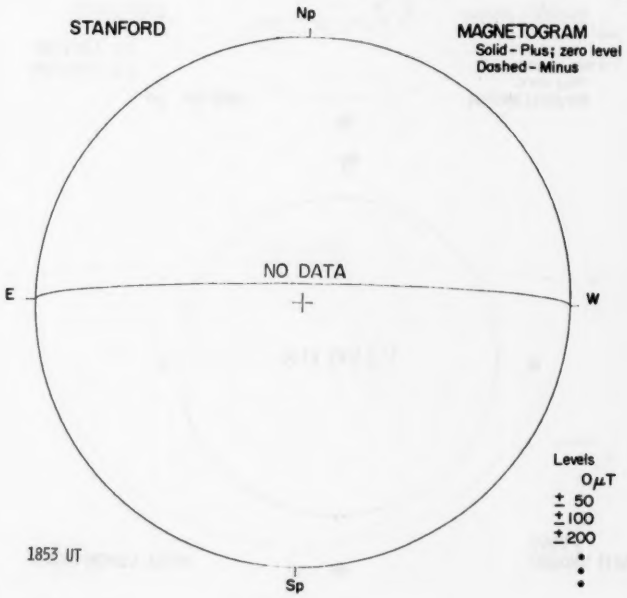
1607 UT

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



JANUARY 11, 1979 (P =-2.53, B_o =-4.12, L_o = 311.06)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

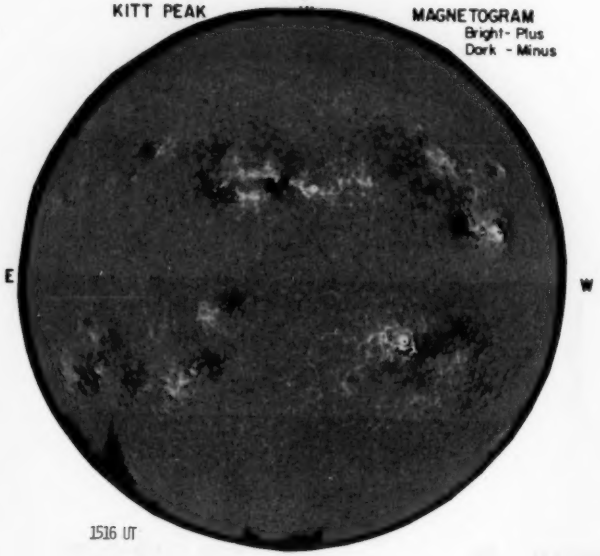
W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1516 UT

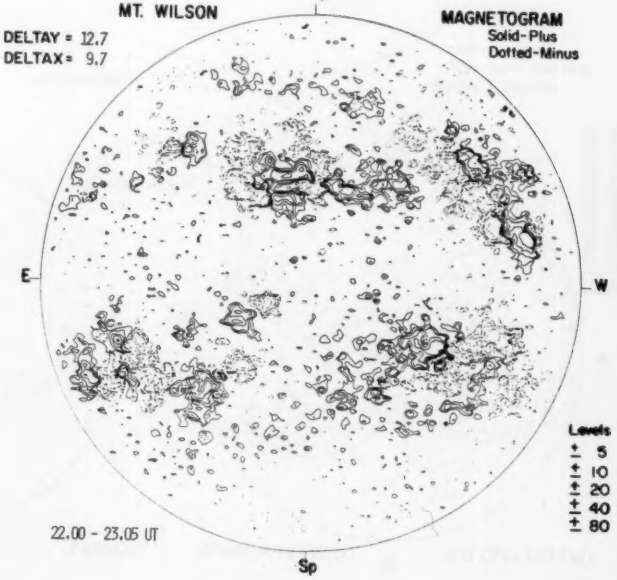
Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.7

MAGNETOGRAM
Solid - Plus
Dotted - Minus



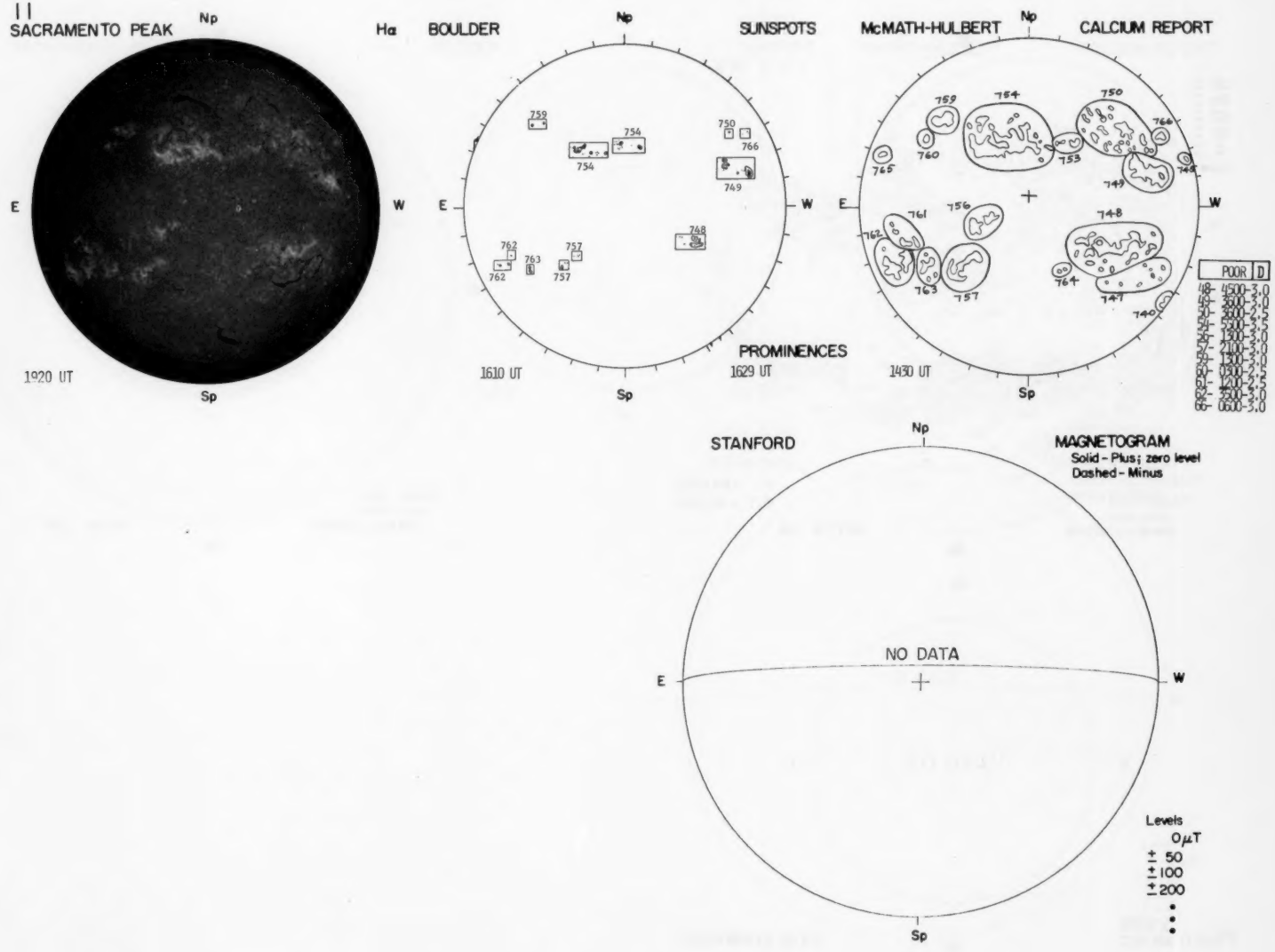
E

W

Levels
+ 5
+ 10
+ 20
+ 40
+ 80

22.00 - 23.05 UT

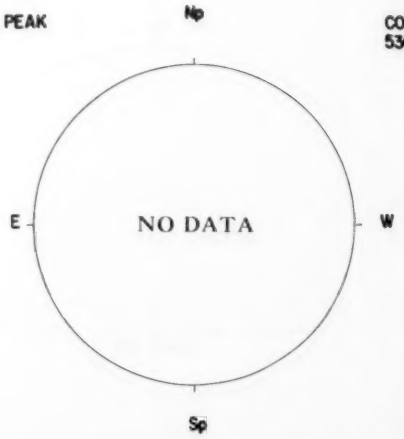
Sp

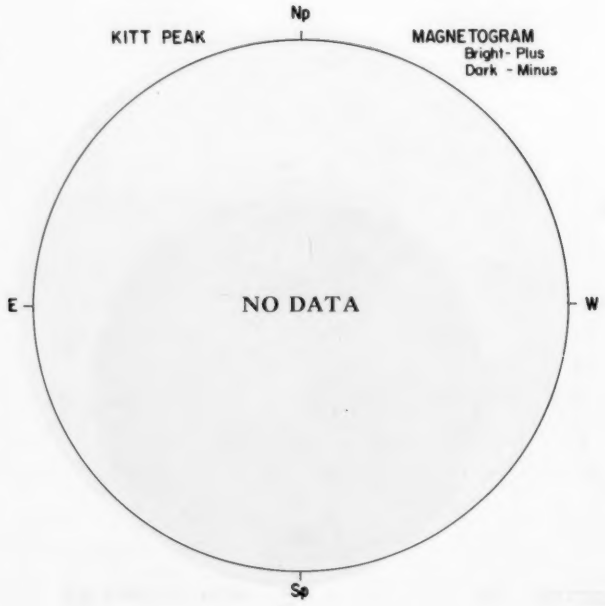

SACRAMENTO PEAK
Np
Hα
E
W
Sp
1920 UT
BOULDER
SUNSPOTS
759
754
754
750
766
749
762
762
763
757
757
748
1610 UT
1629 UT
PROMINENCES
McMATH-HULBERT
CALCIUM REPORT
759
754
750
760
765
753
766
749
761
756
762
748
763
757
764
747
740
1430 UT
POOR D
4500-3.0
3600-3.0
3000-2.5
2500-3.5
1500-3.0
1100-3.5
1300-3.0
0900-3.5
0700-3.5
0600-3.0
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
NO DATA
Levels
0μT
± 50
± 100
± 200

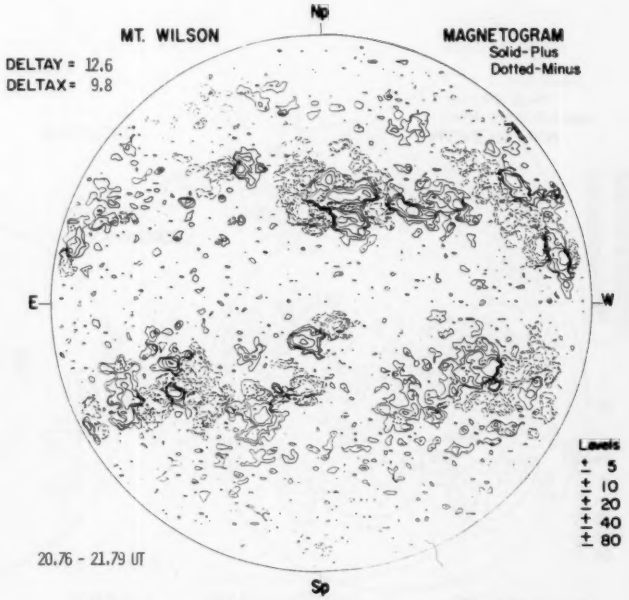
JANUARY 12, 1979 (P =-3.00, B_o =-4.22, L_o =297.89)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

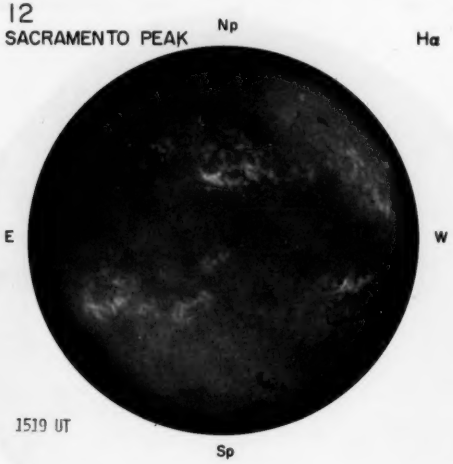






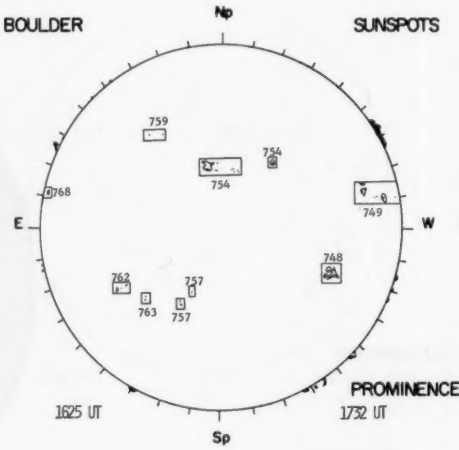
12

SACRAMENTO PEAK



1519 UT

Hα BOULDER



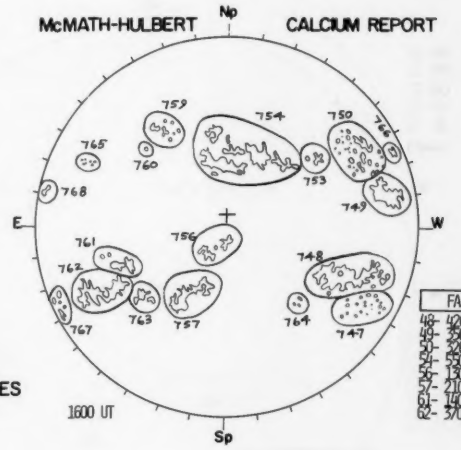
1625 UT

SUNSPOTS

PROMINENCES

1732 UT

McMATH-HULBERT



1600 UT

CALCIUM REPORT

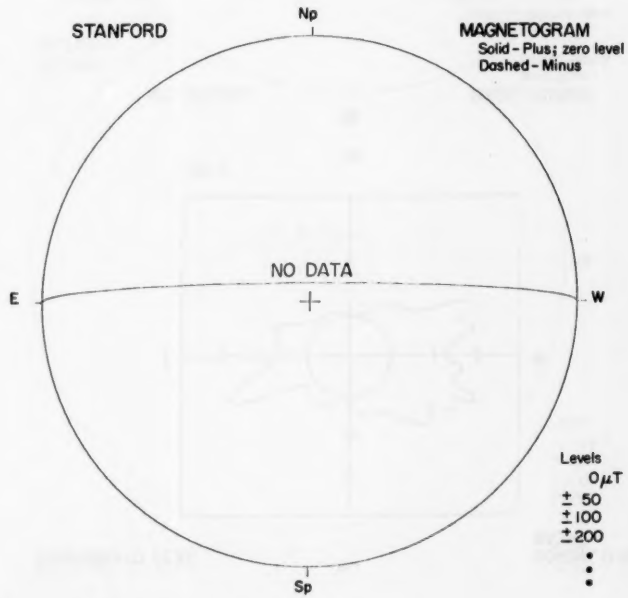
FAIR	M
48- 4200	3.0
49- 3500	3.0
53- 3200	2.5
54- 3500	3.0
56- 1300	2.5
57- 2100	2.5
61- 1400	2.5
62- 3700	3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

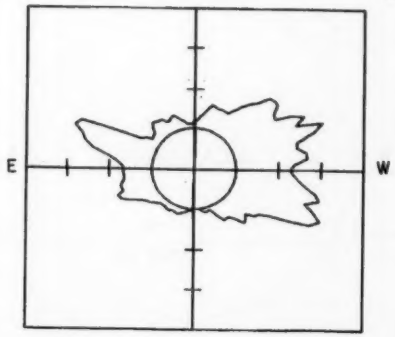


JANUARY 13, 1979 (P =-3.48, B_o =-4.33, L_o = 284.73)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



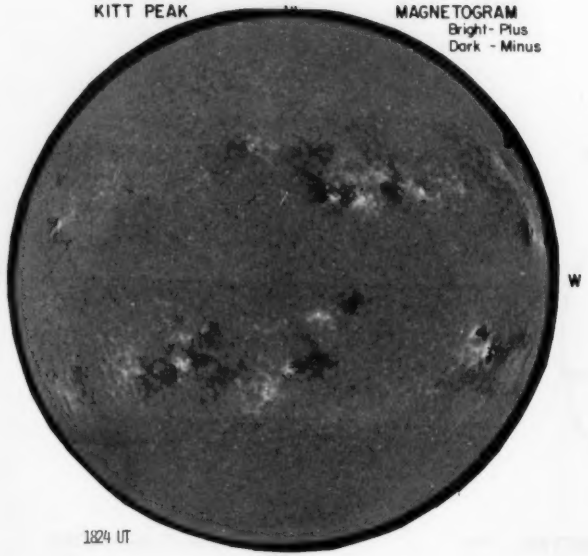
1959 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1824 UT

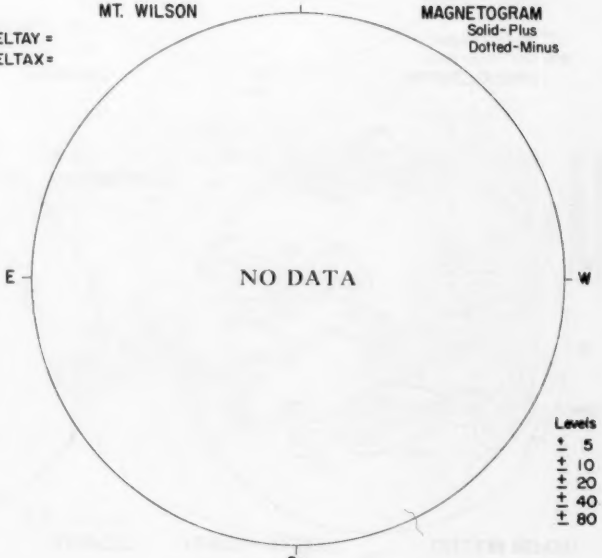
Sp

MT. WILSON

Np

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

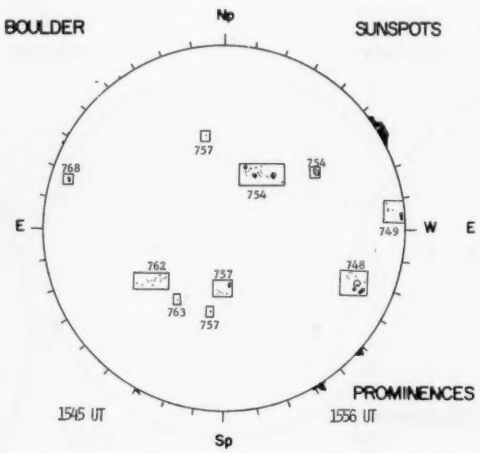


Sp

13

SACRAMENTO PEAK

Hα BOULDER



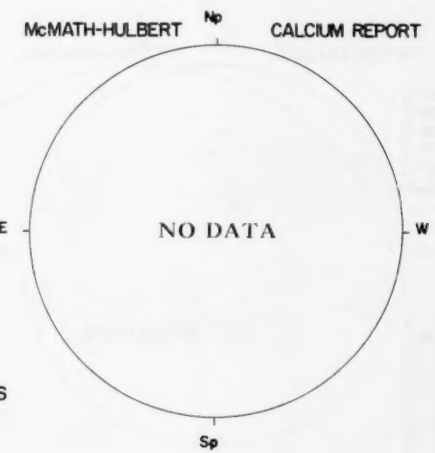
SUNSPOTS

PROMINENCES

1556 UT

McMATH-HULBERT

CALCIUM REPORT

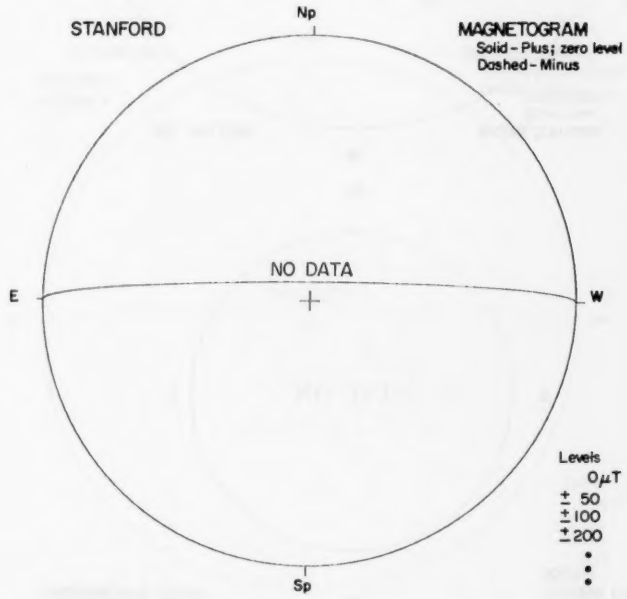


STANFORD

MAGNETOGRAM

Solid – Plus; zero level

Dashed – Minus



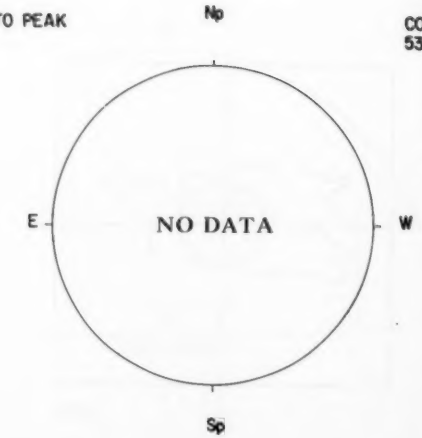
77

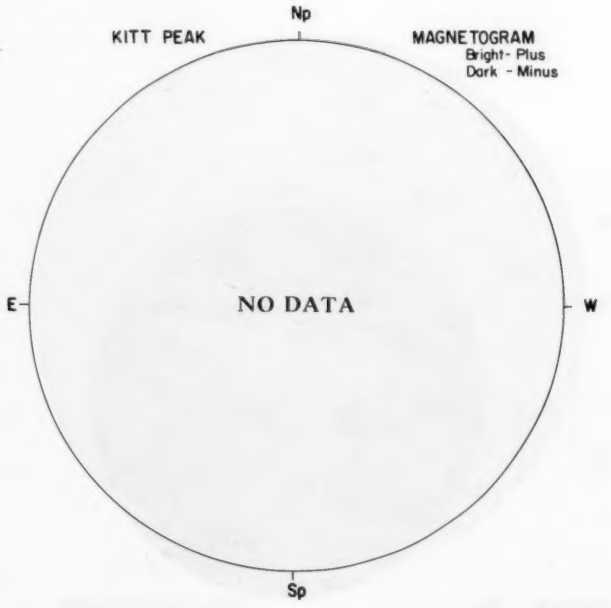
Jan 79

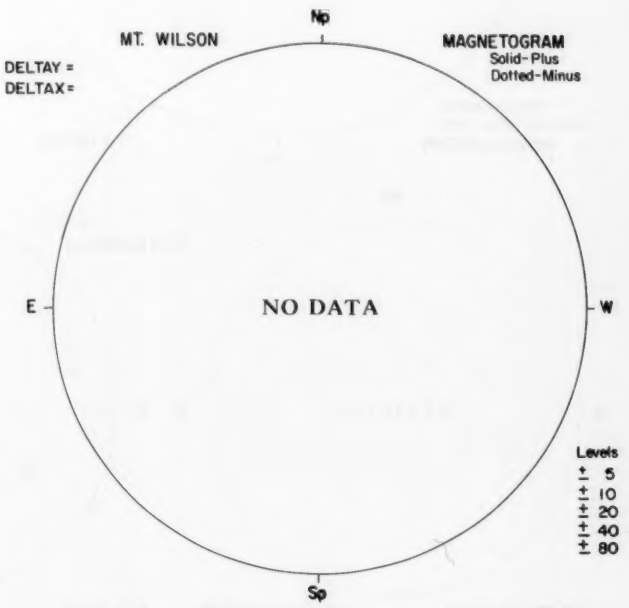
JANUARY 14, 1979 (P =-3.95, B_o =-4.43, L_o =271.56)

78
Jan 79

SACRAMENTO PEAK

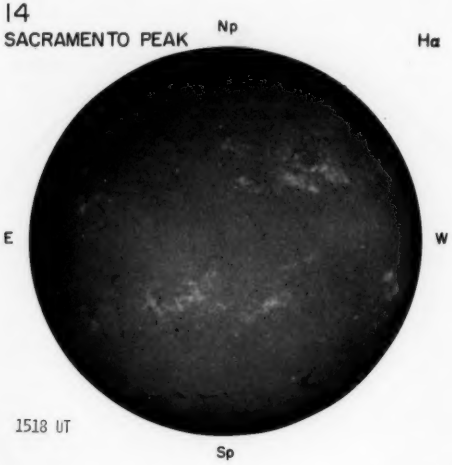




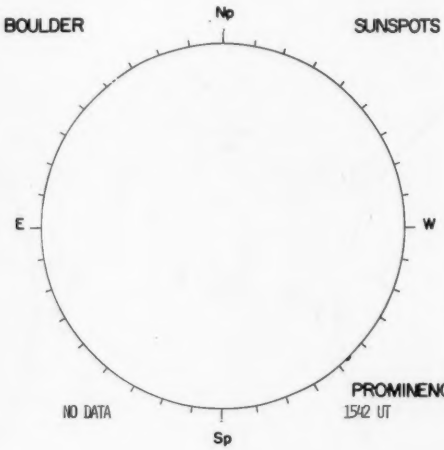


14

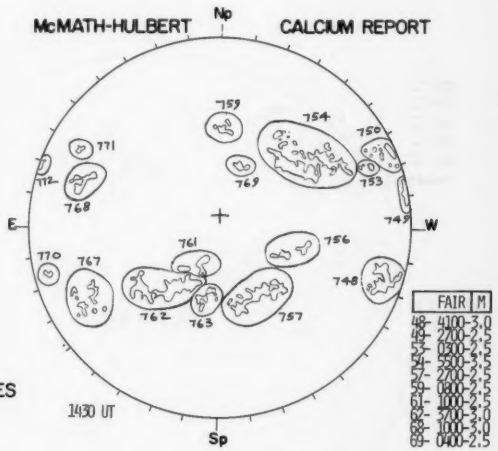
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



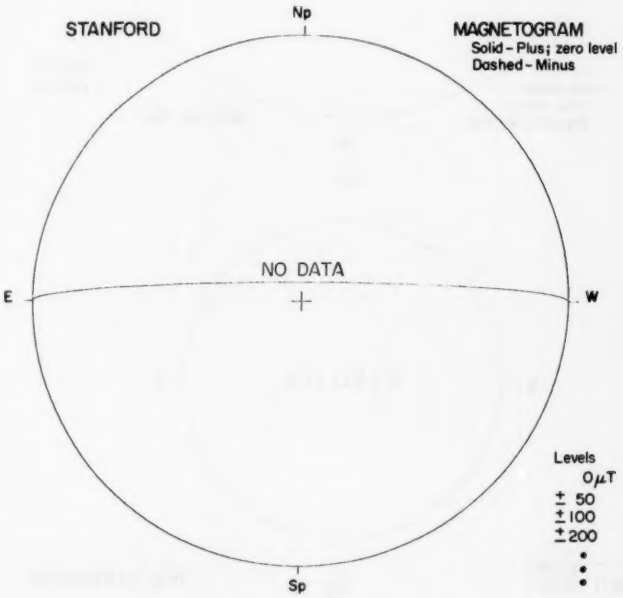
McMATH-HULBERT CALCIUM REPORT

	FAIR	M
48	4100	3.0
49	2100	2.5
50	1900	2.5
51	2100	2.5
52	2200	3.5
53	1800	2.5
60	1000	2.5
61	1000	2.5
62	2700	3.0
63	1000	3.0
69	0400	2.5

PROMINENCES

1542 UT

STANFORD



MAGNETOGRAM

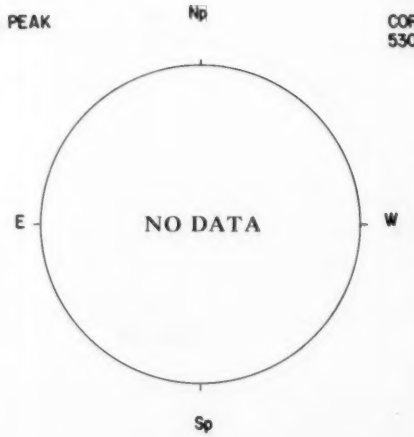
Solid – Plus; zero level
Dashed – Minus

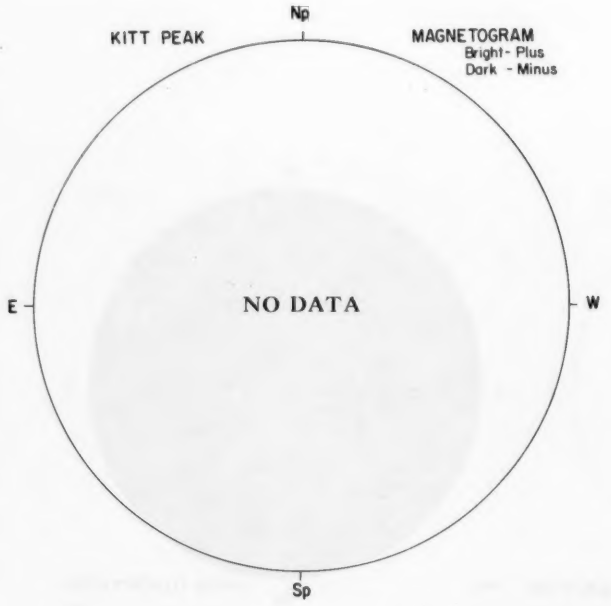
79 Jan 79

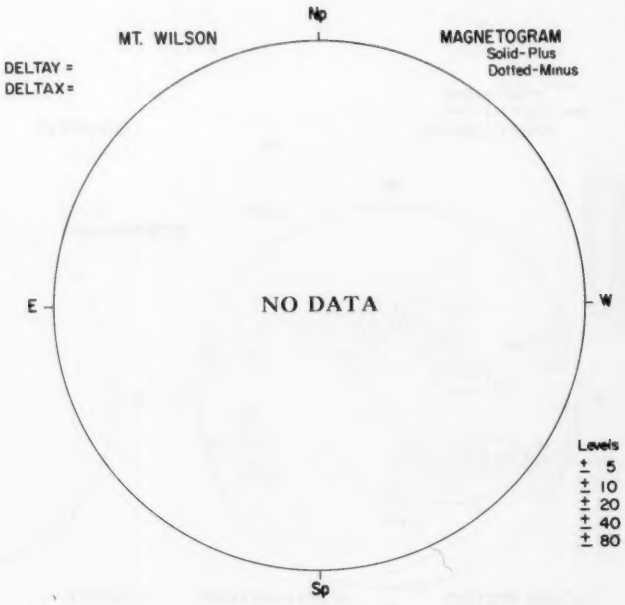
JANUARY 15, 1979 (P = -4.42, B_o = -4.53, L_o = 258.39)

80
Jan 79

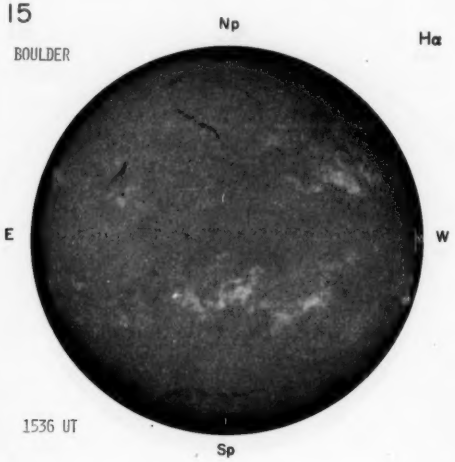
SACRAMENTO PEAK



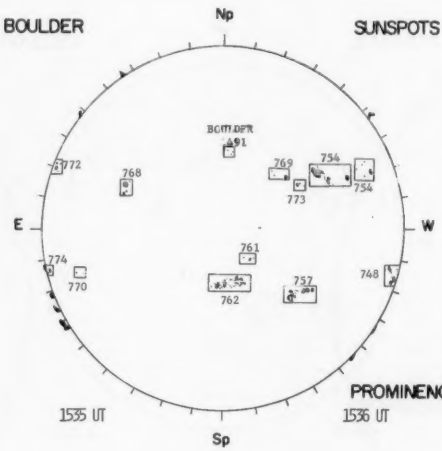




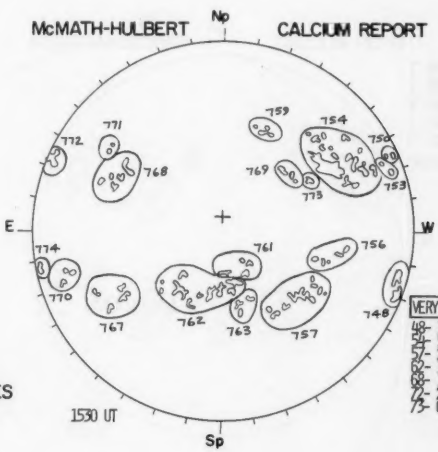
15



Hα BOULDER



SUNSPOTS



McMATH-HULBERT CALCIUM REPORT

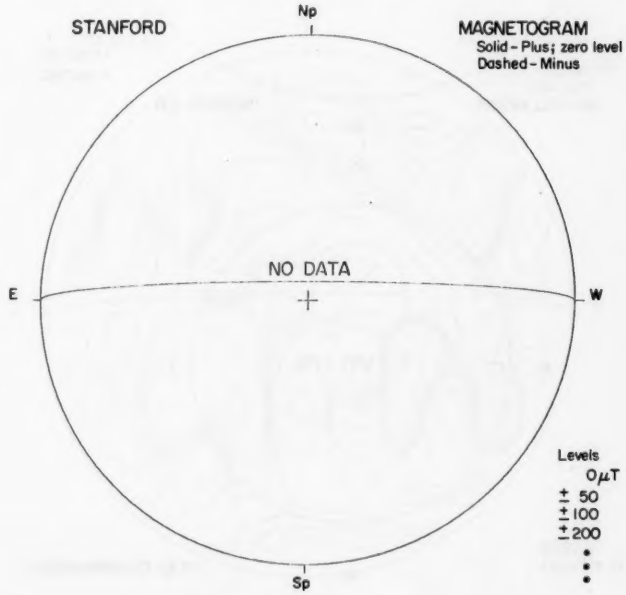
	VERY POOR	D
48-	3000-	3.0
54-	2500-	2.5
57-	2500-	2.5
62-	2500-	2.5
68-	1100-	2.5
72-	2000-	3.0
73-	0200-	2.5

PROMINENCES

1536 UT

STANFORD MAGNETOGRAM

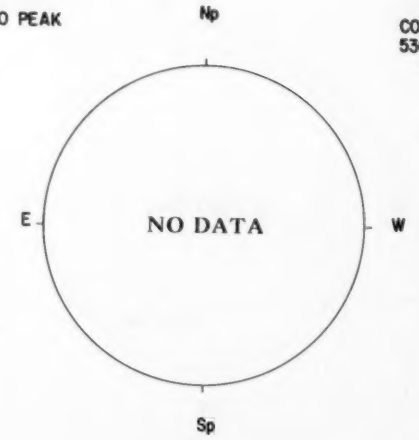
Solid - Plus; zero level
Dashed - Minus

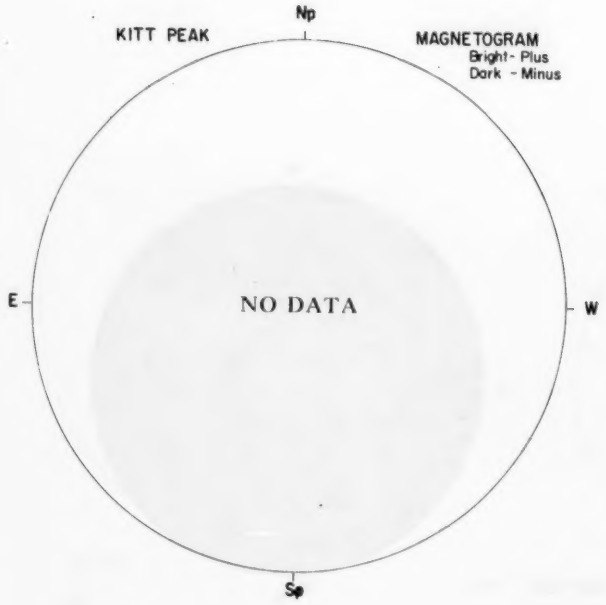


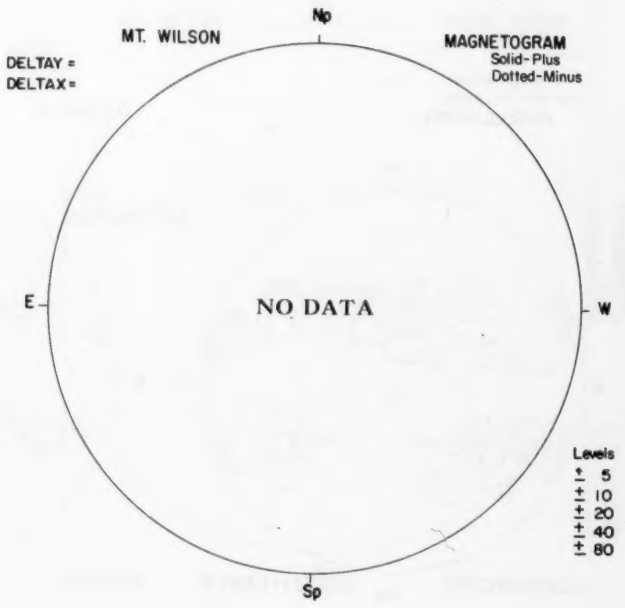
81
Jan 79

JANUARY 16, 1979 (P =-4.89, B_0 =-4.63, L_0 = 245.22)

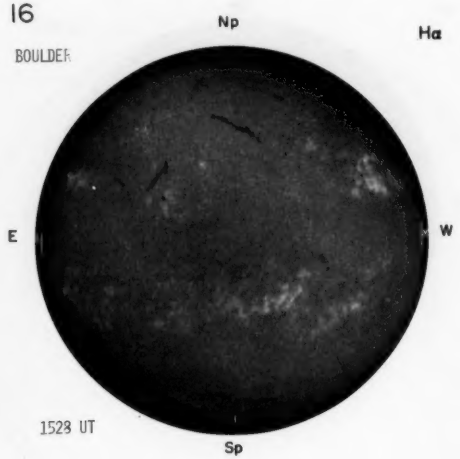
SACRAMENTO PEAK



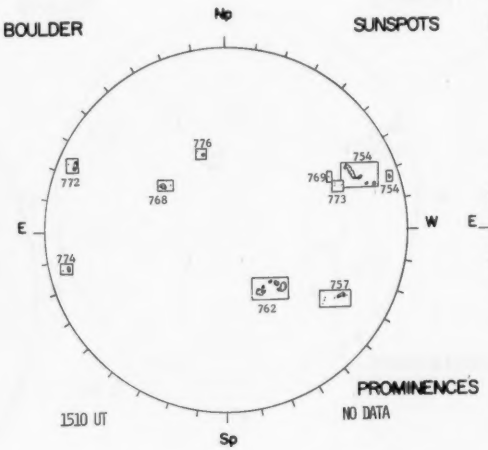




16



Hα BOULDER

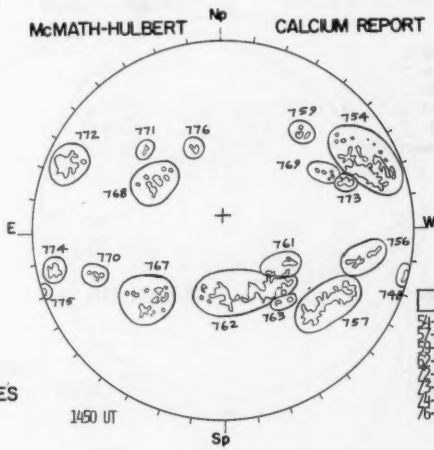


SUNSPOTS

PROMINENCES

NO DATA

McMATH-HULBERT CALCIUM REPORT



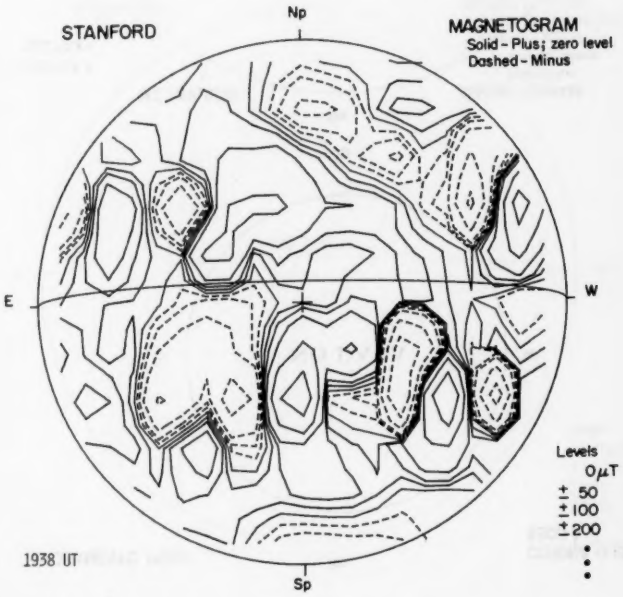
	FAIR	M
54-	5500	3.5
57-	2700	3.0
59-	1600	2.5
62-	3600	3.0
64-	2900	3.0
73-	1600	2.5
74-	1400	3.0
76-	0300	2.5

STANFORD

MAGNETOGRAM

Solid – Plus; zero level

Dashed – Minus



JANUARY 17, 1979 (P =-5.36, B_0 =-4.73, L_0 = 232.05)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — NO DATA — W

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

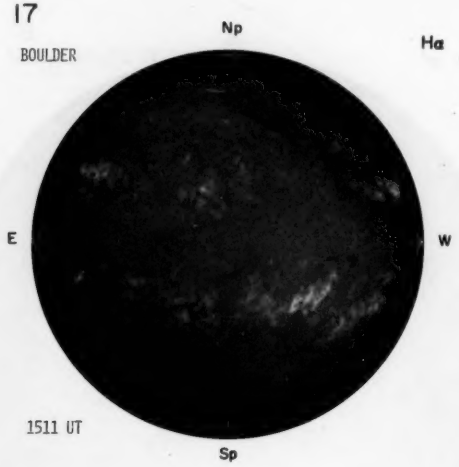
DELTAY =
DELTAX =

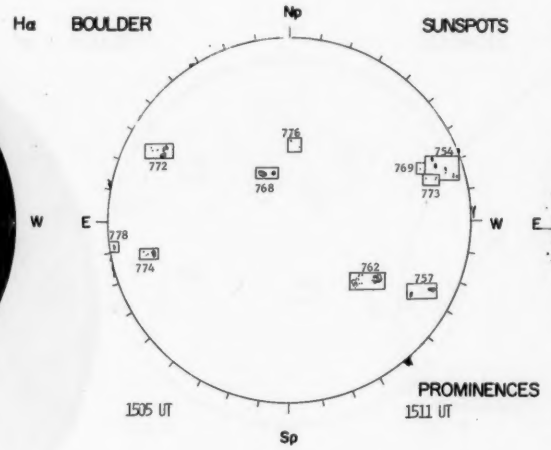
E — NO DATA — W

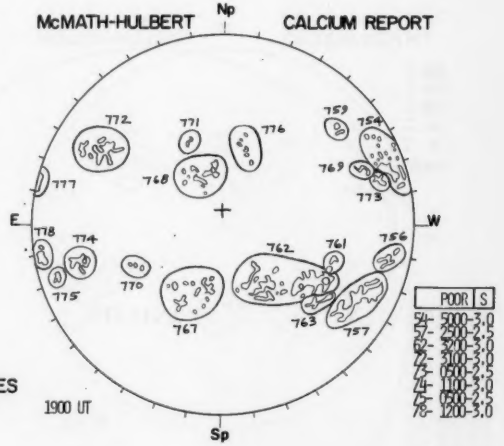
Levels
± 5
± 10
± 20
± 40
± 80

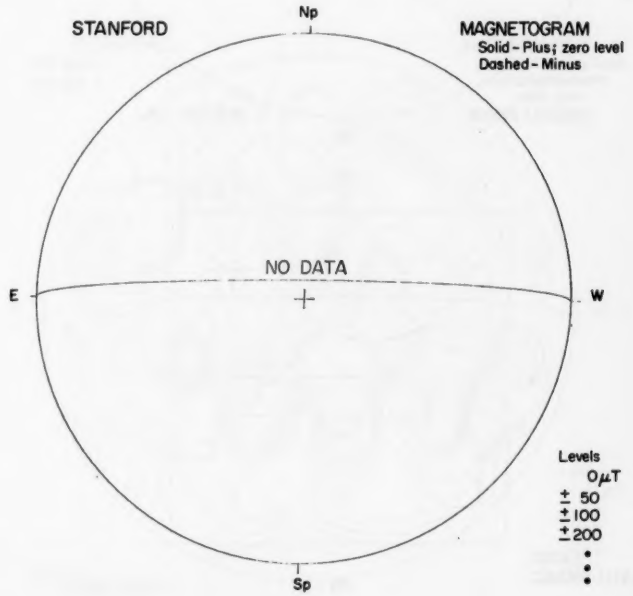
Sp

17


BOULDER
Np
E
W
Sp
1511 UT

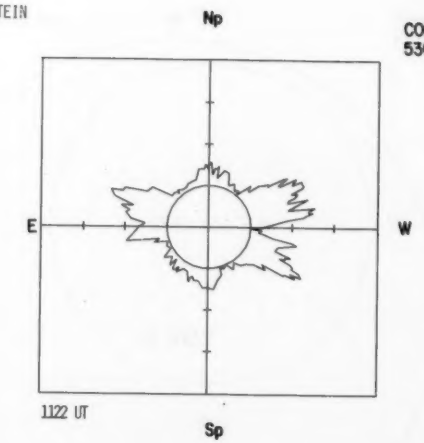

Hα BOULDER SUNSPOTS
Np
E
W
Sp
1505 UT
772
776
768
769
754
773
778
774
762
757
PROMINENCES
1511 UT

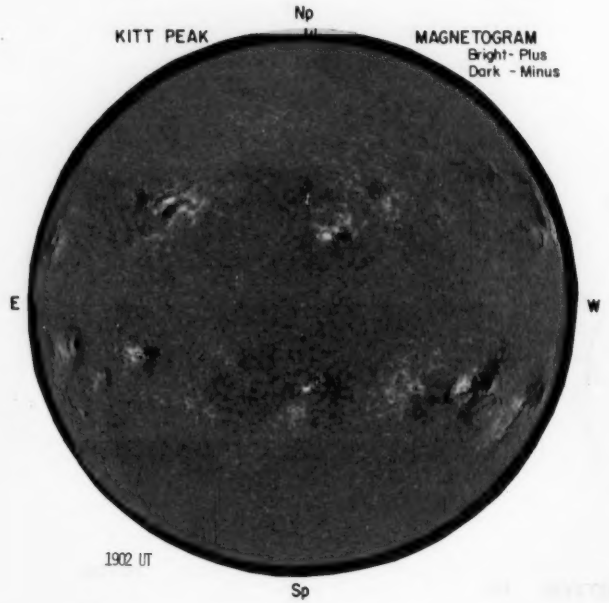

McMATH-HULBERT CALCIUM REPORT
Np
E
W
Sp
1900 UT
772
771
776
759
754
777
768
769
773
778
774
762
761
756
770
775
767
763
757
POOR S
5000-3.0
2500-2.5
3000-3.0
3100-3.0
0600-2.5
1100-3.0
0900-2.5
1200-3.0

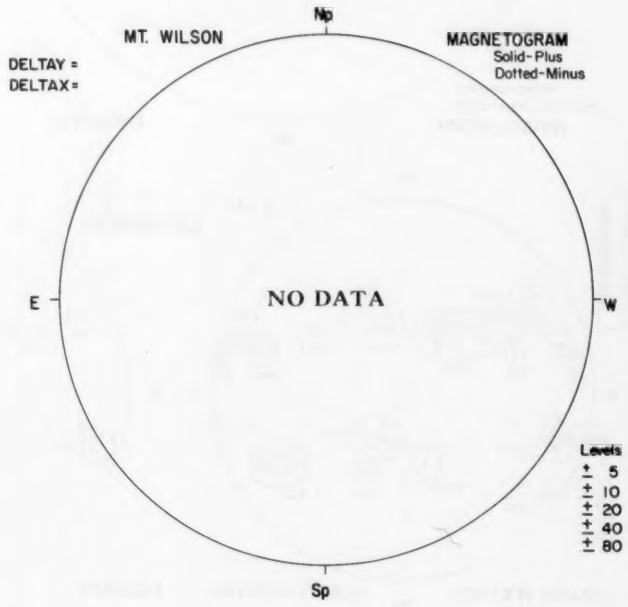

STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
NO DATA
Levels
0μT
± 50
± 100
± 200

JANUARY 18, 1979 (P =-5.83, B_0 =-4.83, L_0 = 218.89)

WENDELSTEIN

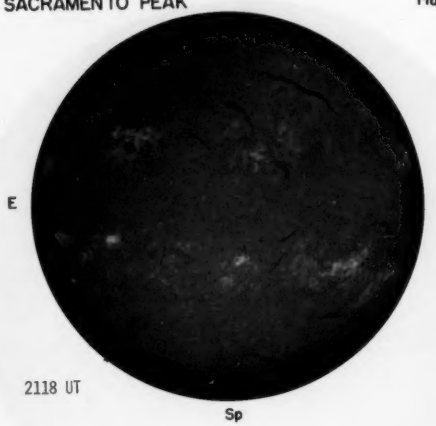






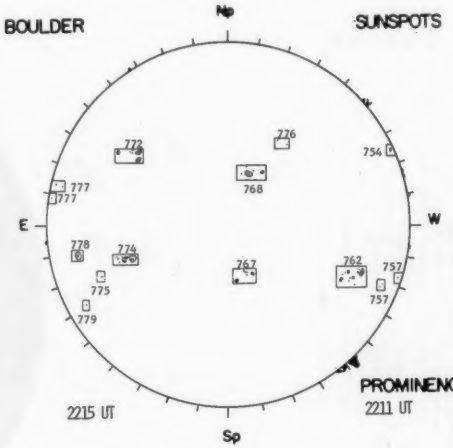
18

SACRAMENTO PEAK Hα



2118 UT

BOULDER SUNSPOTS

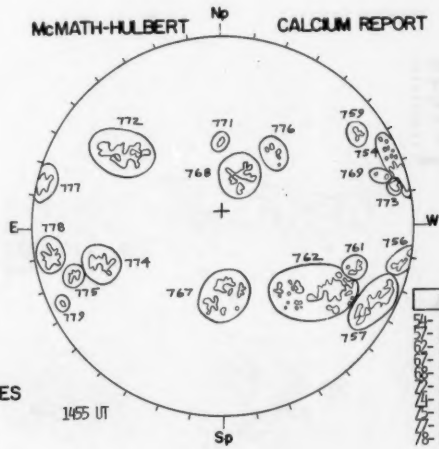


2215 UT

PROMINENCES

2211 UT

McMATH-HULBERT CALCIUM REPORT

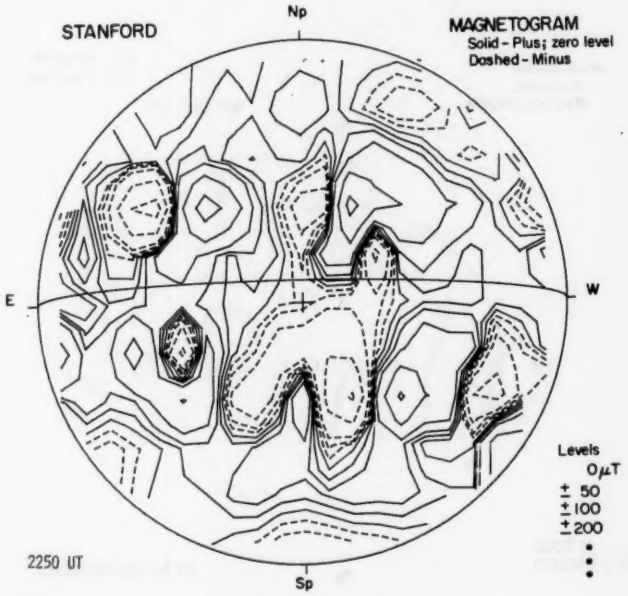


1455 UT

	FAIR	M
5F	3900	3.5
5F	2700	2.5
6F	3600	3.5
6F	1400	2.5
6B	1200	2.5
7F	3100	3.0
7F	1500	3.5
7F	1600	2.5
7F	3000	3.5
7B	2700	2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2250 UT

87
Jan 79

JANUARY 19, 1979 (P =-6.29, B_o =-4.92, L_o = 205.72)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

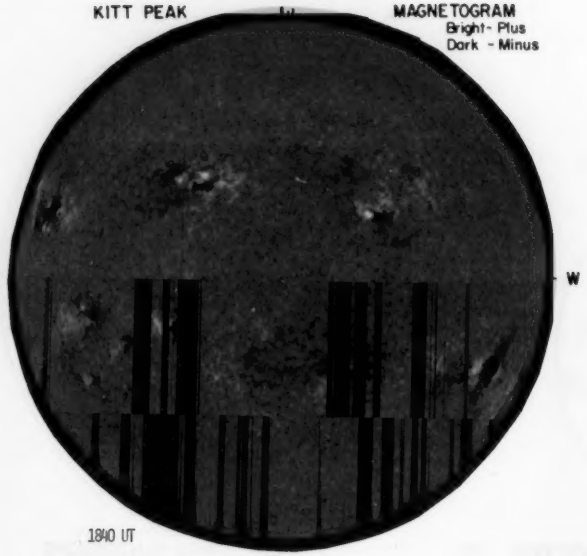
E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1840 UT

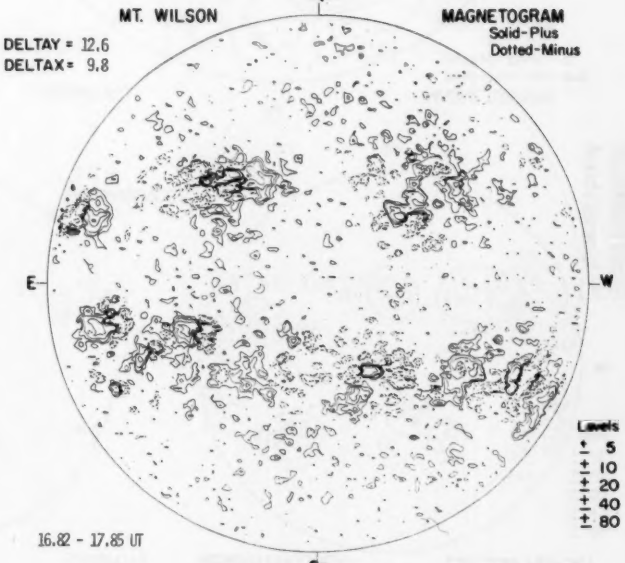
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.6
DELTAX = 9.8



E W

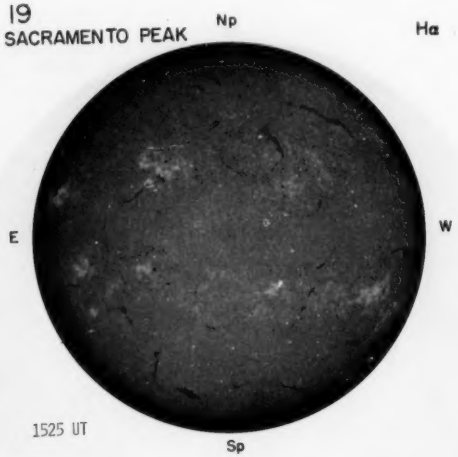
Levels
± 5
± 10
± 20
± 40
± 80

16.82 - 17.85 UT

Sp

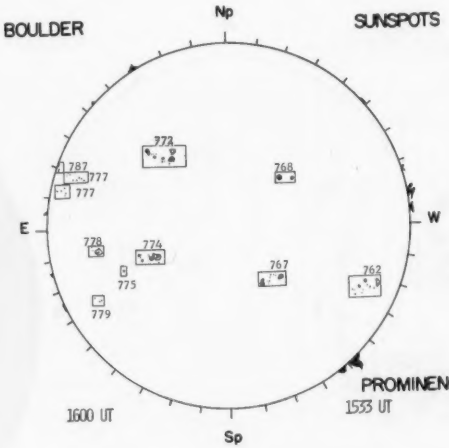
19

SACRAMENTO PEAK



1525 UT

Hα BOULDER



1600 UT

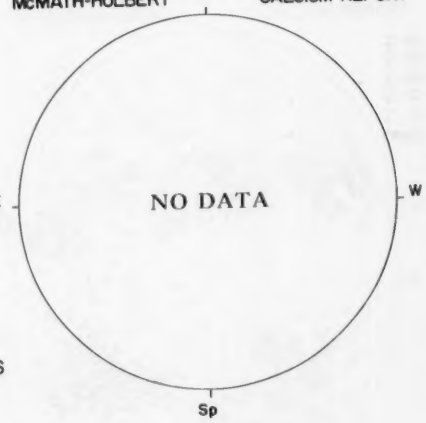
SUNSPOTS

PROMINENCES

1533 UT

McMATH-HULBERT

CALCIUM REPORT

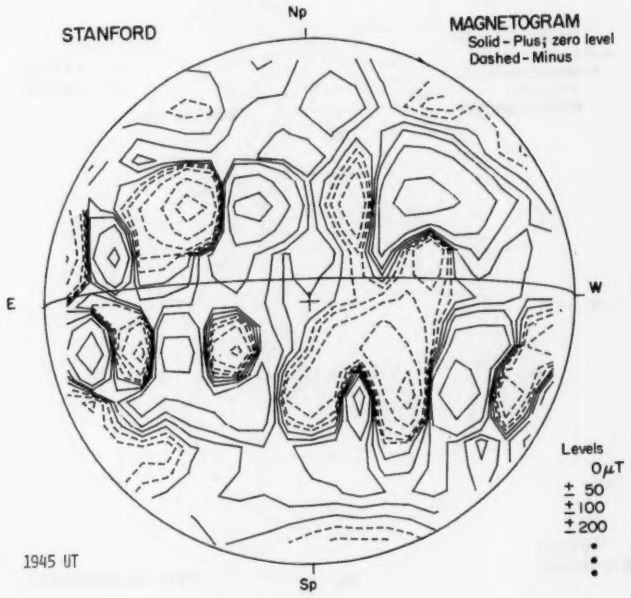


STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1945 UT

89

Jan 79

JANUARY 20, 1979 (P =-6.75, B_o =-5.02, L_o =192.55)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

Np

E W

1753 UT

Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.7

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E W

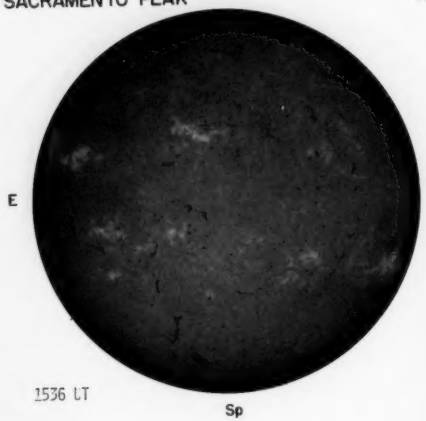
Levels
± 5
± 10
± 20
± 40
± 80

18.27 - 19.23 UT

Sp

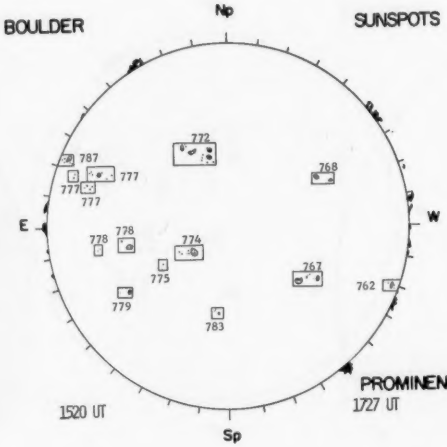
20

SACRAMENTO PEAK



1536 LT

Hα BOULDER SUNSPOTS

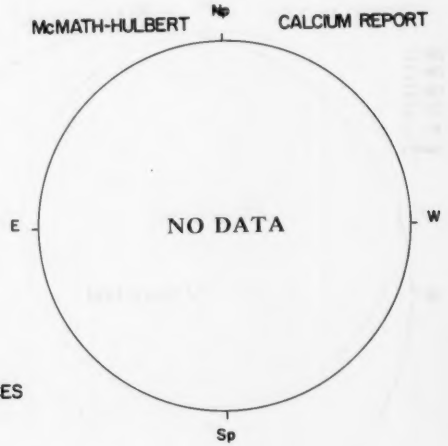


1520 UT

PROMINENCES

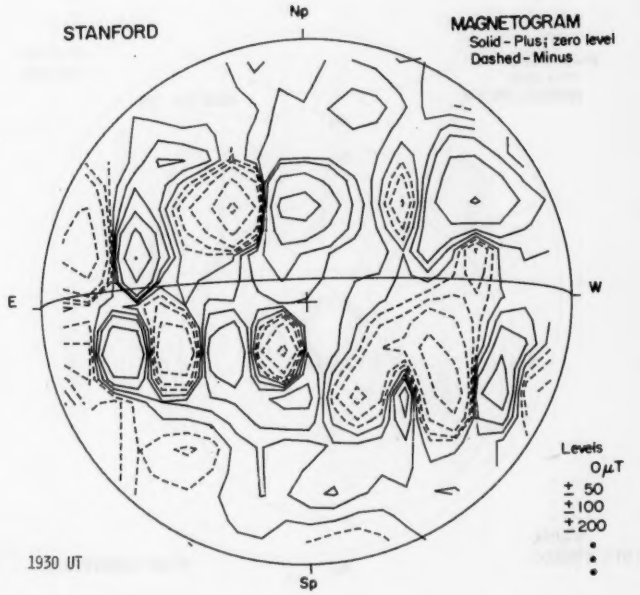
1727 UT

McMATH-HULBERT CALCIUM REPORT



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

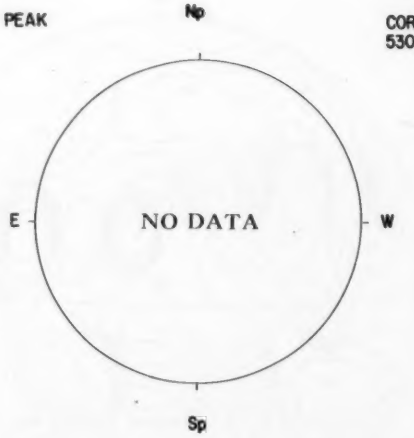


1930 UT

JANUARY 21, 1979 (P =-7.20, B_o =-5.11, L_o =179.39)

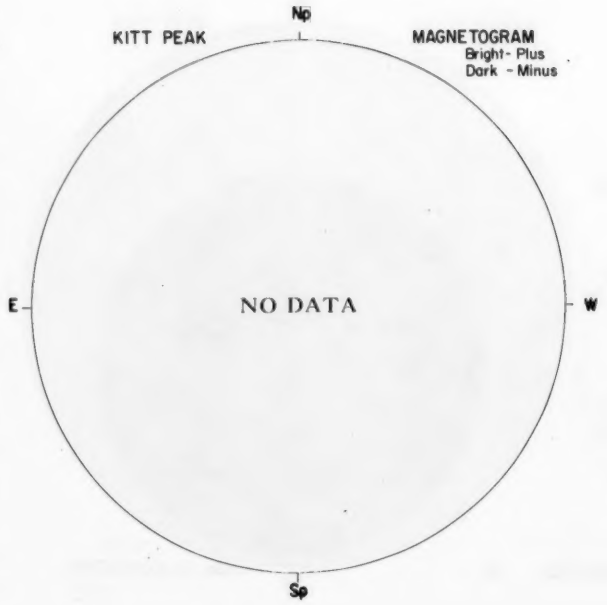
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

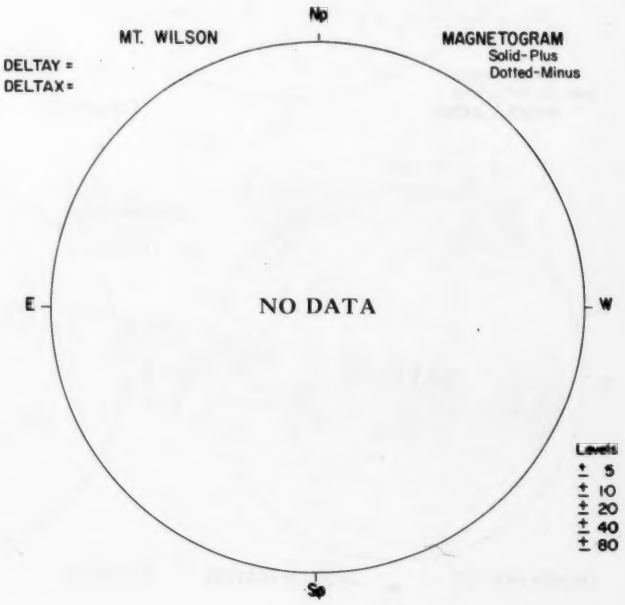
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

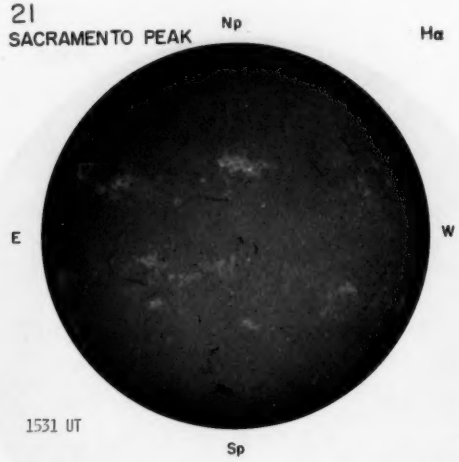
DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus



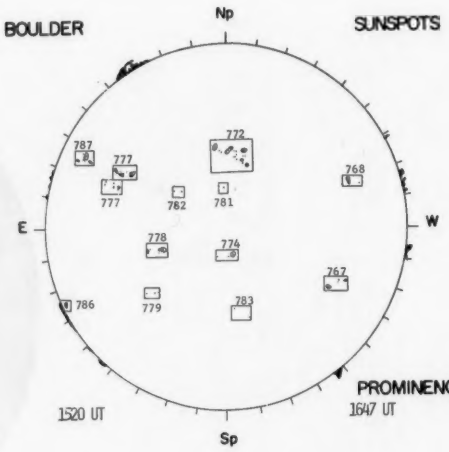
21

SACRAMENTO PEAK



1531 UT

Hα BOULDER



1520 UT

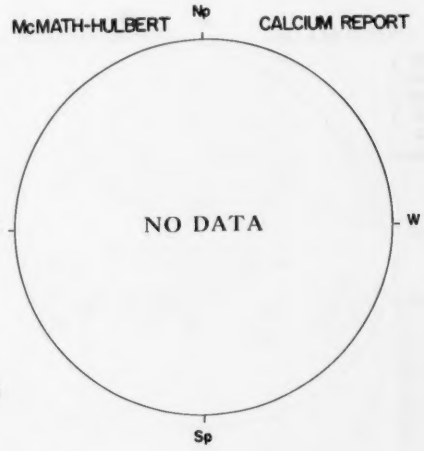
SUNSPOTS

PROMINENCES

1647 UT

McMATH-HULBERT

CALCIUM REPORT

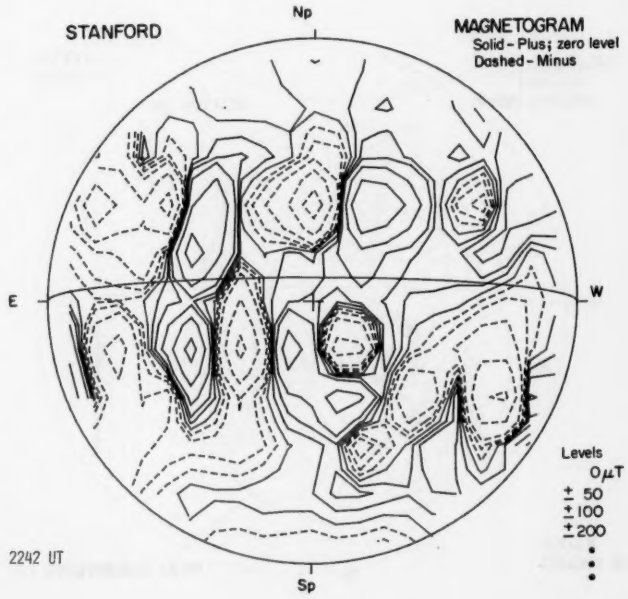


STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



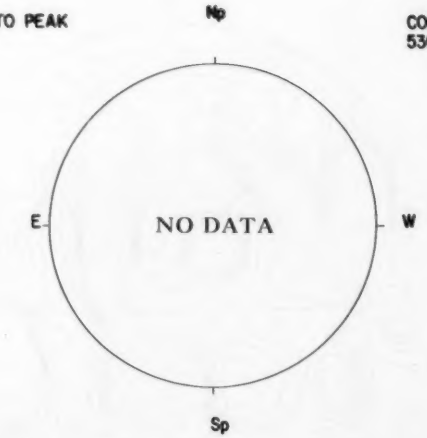
2242 UT

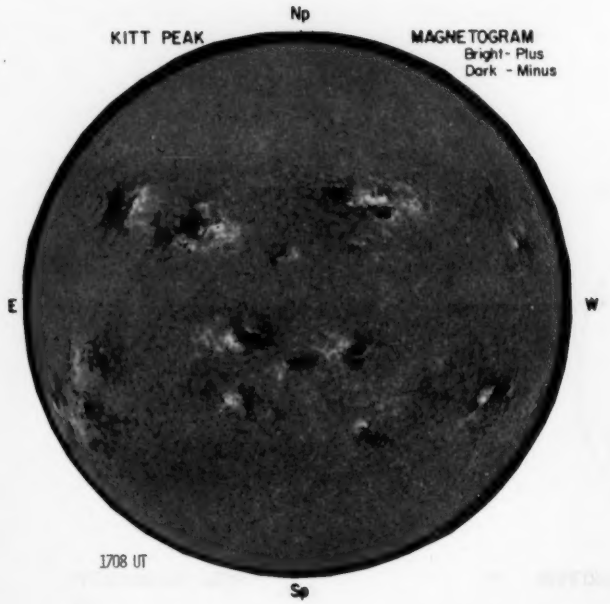
93

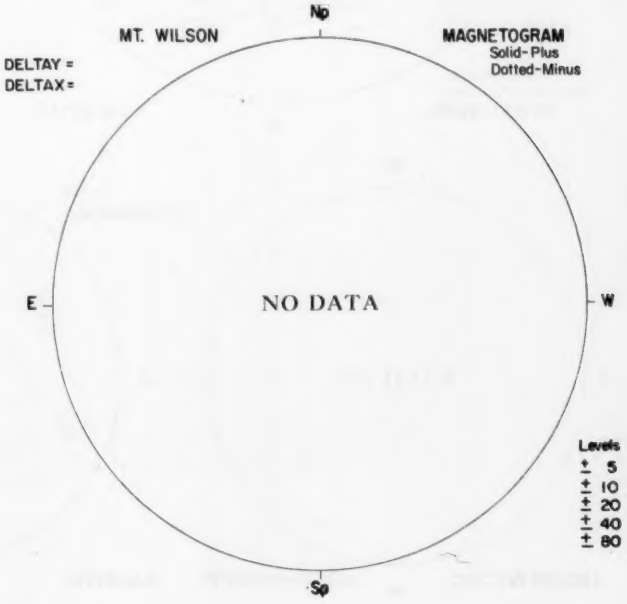
Jan 79

JANUARY 22, 1979 (P =-7.65, B_o =-5.20, L_o = 166.22)

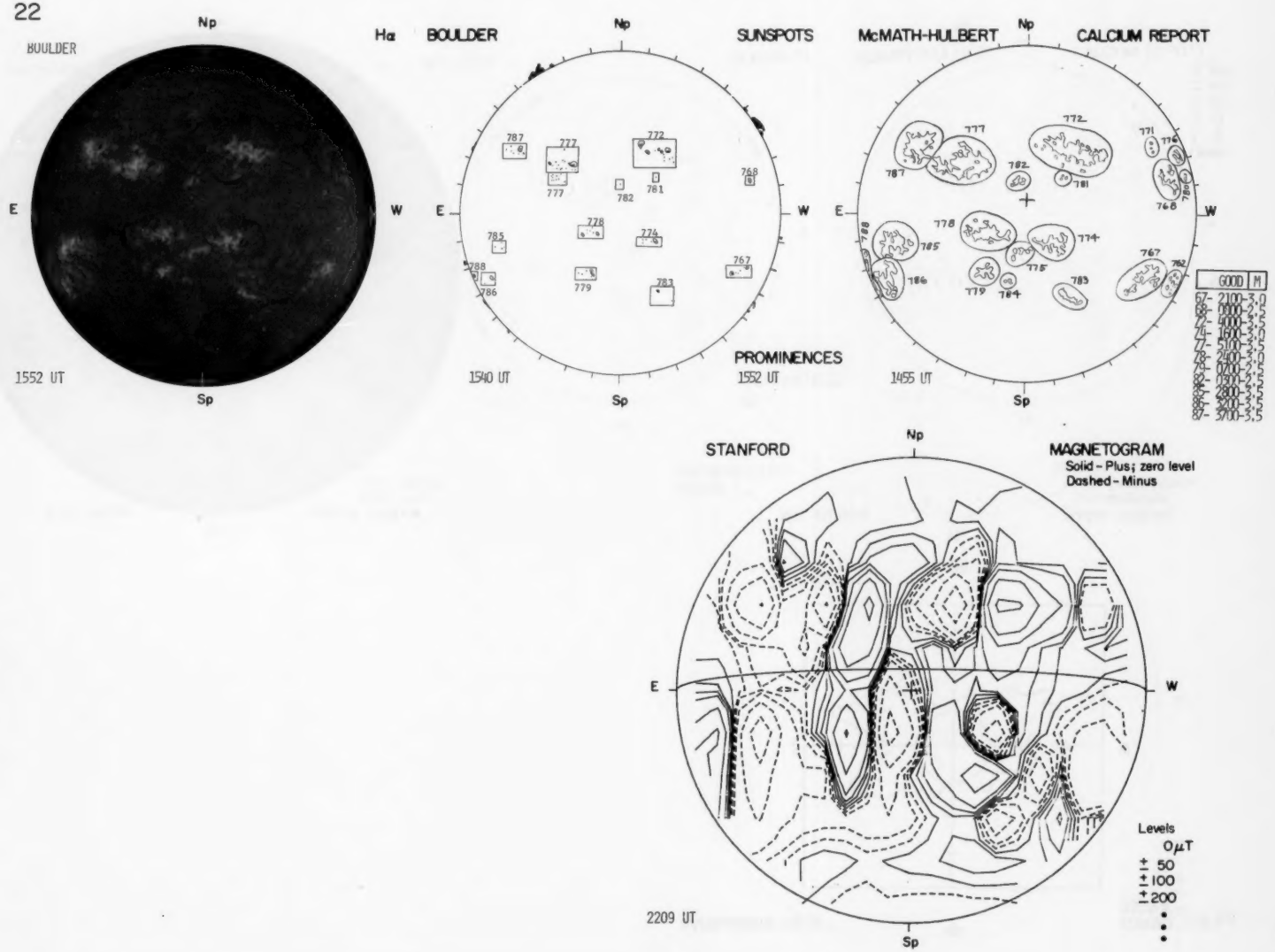
SACRAMENTO PEAK







22

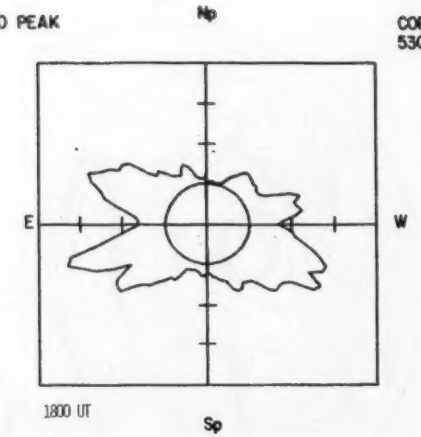

BOULDER
Np
Sp
E
W
1552 UT
Hα BOULDER
1540 UT
SUNSPOTS
PROMINENCES
1552 UT
McMATH-HULBERT
1455 UT
CALCIUM REPORT
GOOD | M
STANFORD
MAGNETOGRAM
Solid – Plus; zero level
Dashed – Minus
2209 UT
Levels
0μT
± 50
± 100
± 200

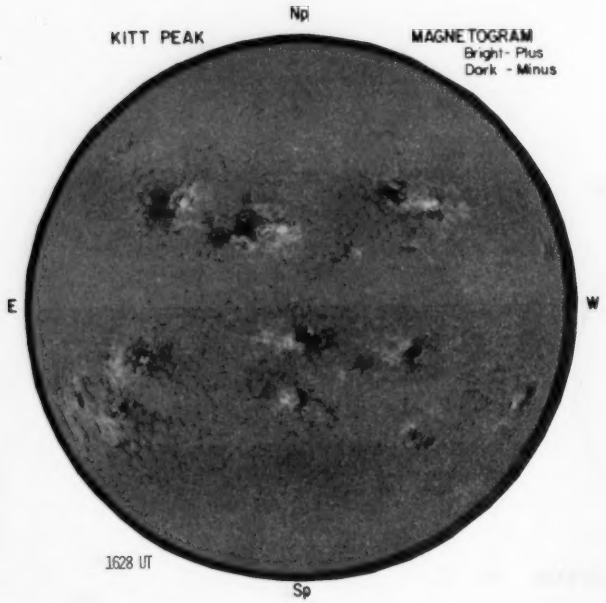
95
Jan 79

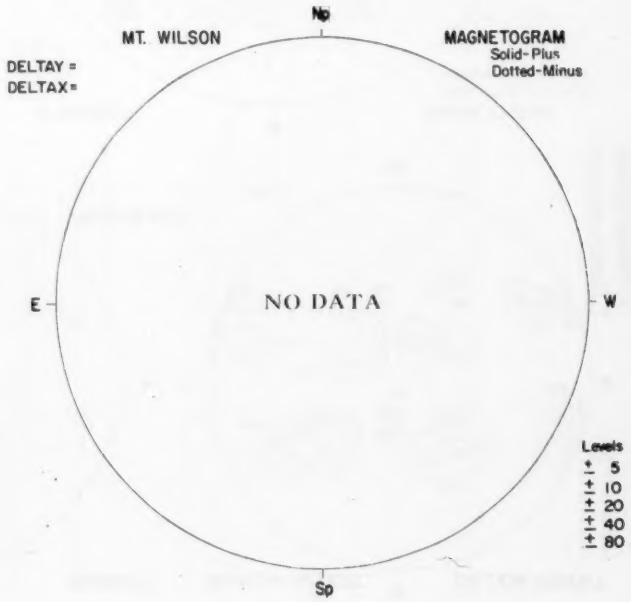
JANUARY 23, 1979 (P =-8.10, B_0 =-5.29, L_0 = 153.05)

96
Jan 79

SACRAMENTO PEAK

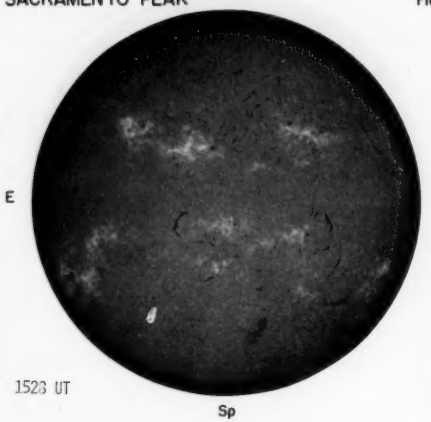




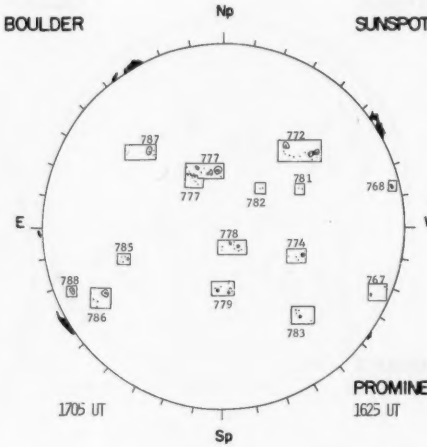


23

SACRAMENTO PEAK Hα

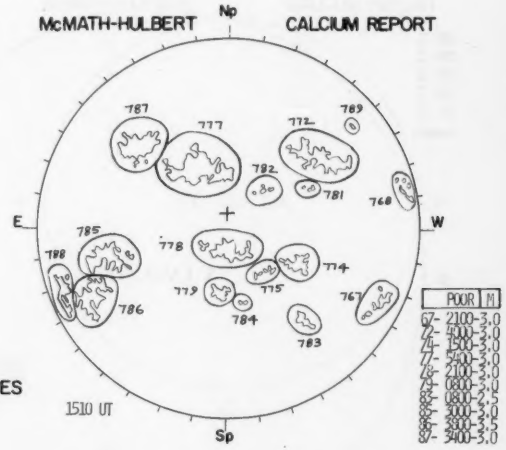


BOULDER SUNSPOTS



PROMINENCES 1625 UT

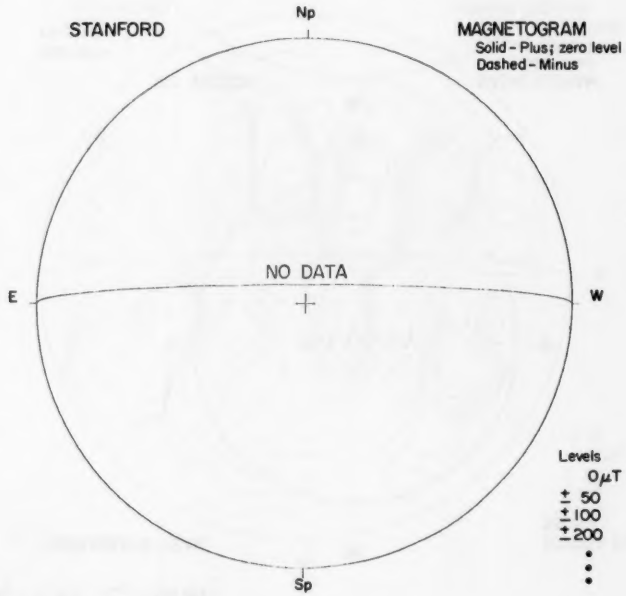
McMATH-HULBERT CALCIUM REPORT



POOR	M
67-	2100-3.0
72-	1900-3.0
74-	1500-3.0
77-	1400-3.0
79-	2100-3.0
79+	0800-2.0
82-	0800-2.5
82-	3000-3.0
85-	3000-3.5
87-	3400-3.0

STANFORD MAGNETOGRAM

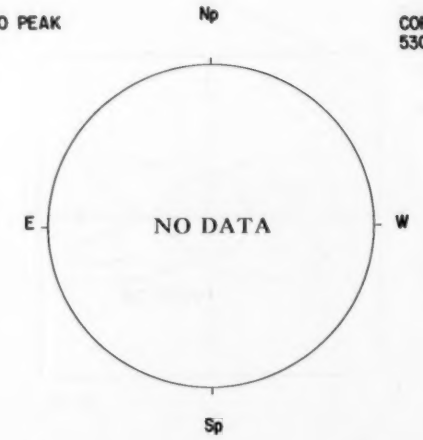
Solid - Plus; zero level
Dashed - Minus

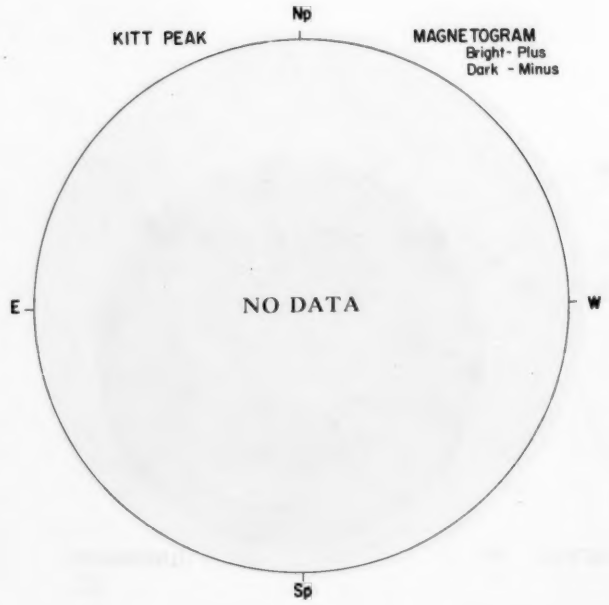


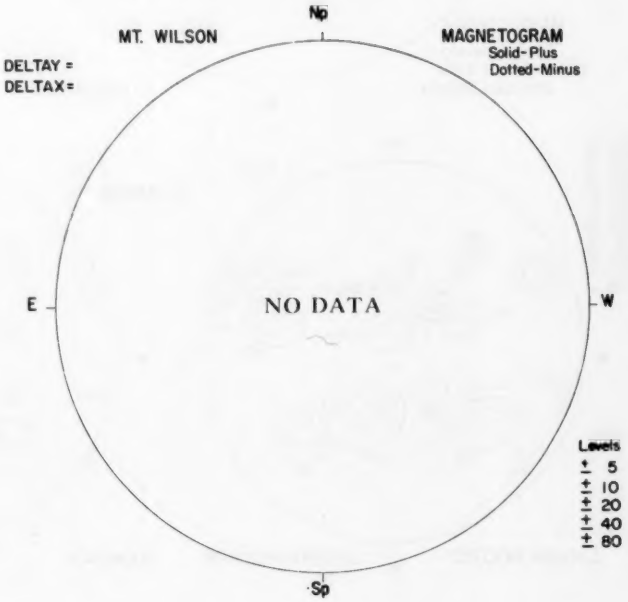
97
Jan 79

JANUARY 24, 1979 (P =-8.55, B_0 =-5.37, L_0 =139.89)

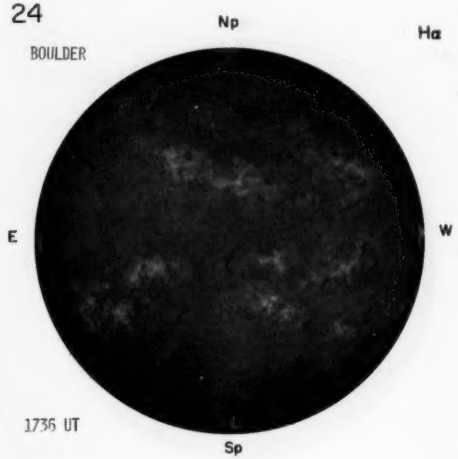
SACRAMENTO PEAK

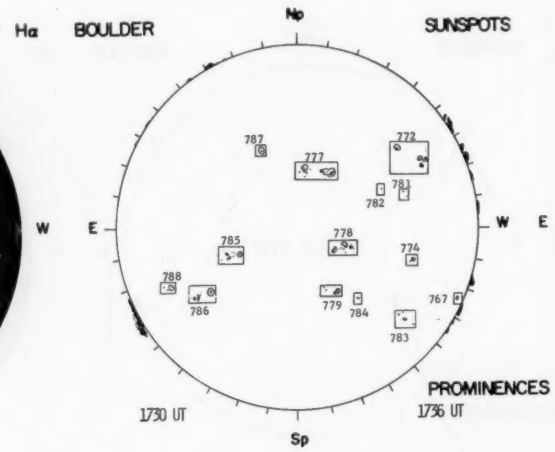


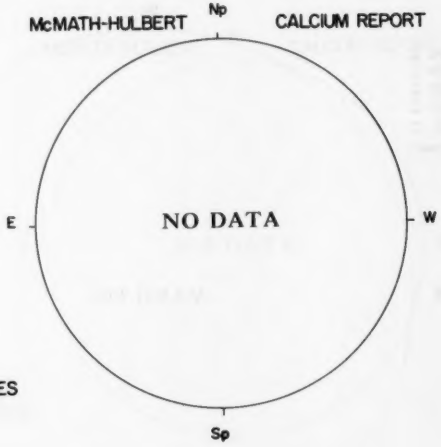


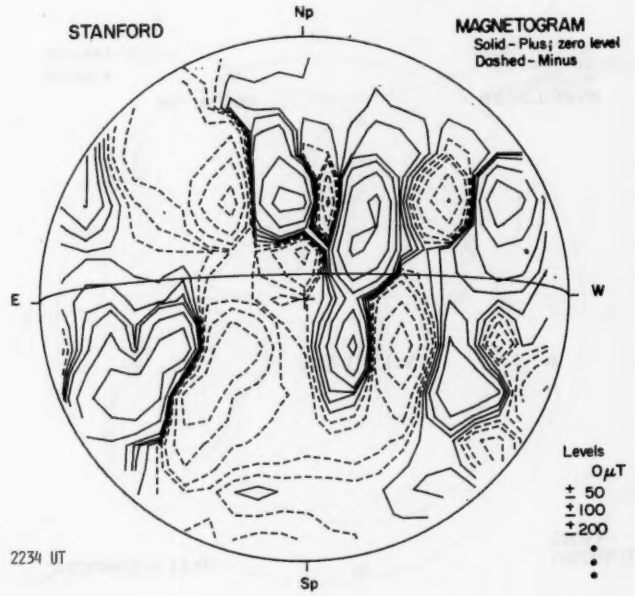


24


BOULDER
Np
E
W
Sp
1736 UT

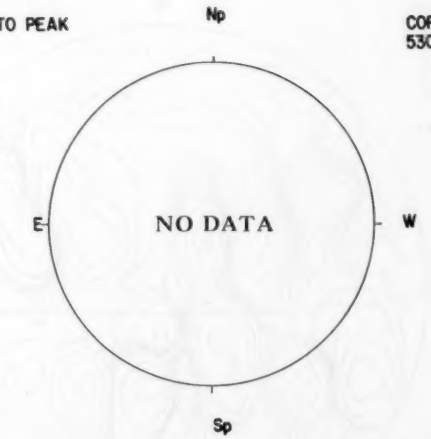

Hα BOULDER
Np
E
W
Sp
1730 UT
787
777
772
783
782
785
778
774
788
786
779
784
767
783
SUNSPOTS
PROMINENCES
1736 UT

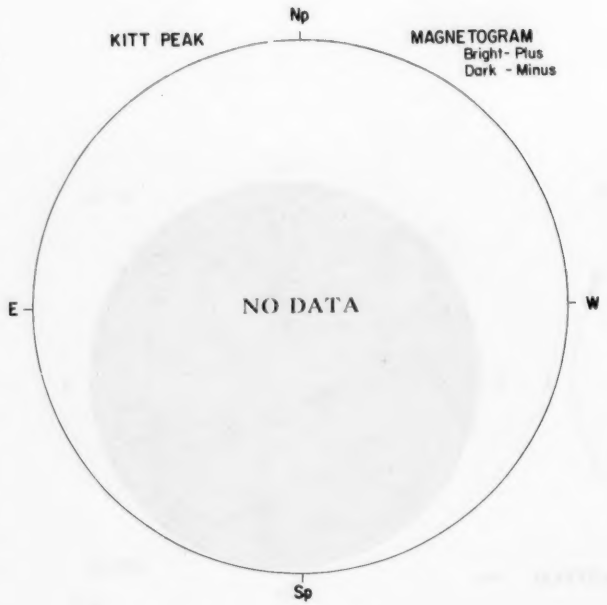

McMATH-HULBERT
Np
E
W
Sp
NO DATA
CALCIUM REPORT

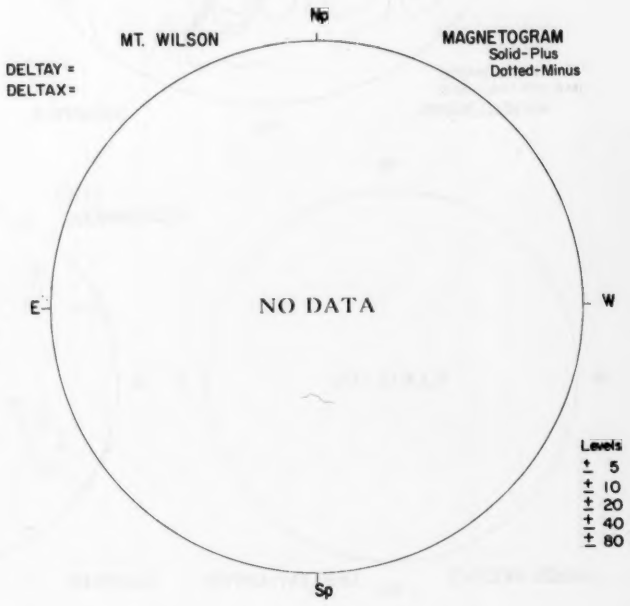

STANFORD
Np
E
W
Sp
2234 UT
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
± 100
± 200

JANUARY 25, 1979 (P =-8.99, B_o =-5.46, L_o = 126.72)

SACRAMENTO PEAK

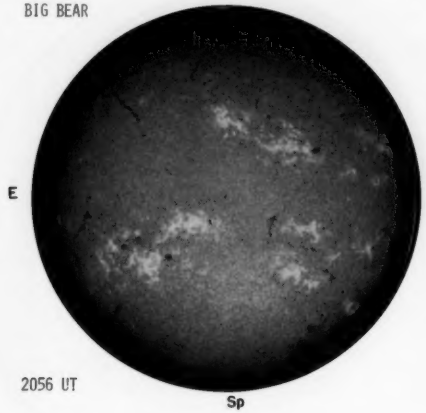






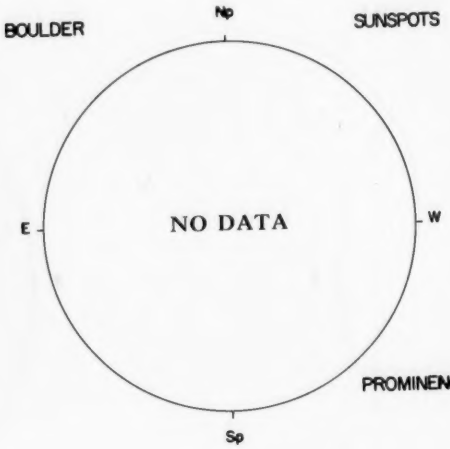
25

BIG BEAR



2056 UT

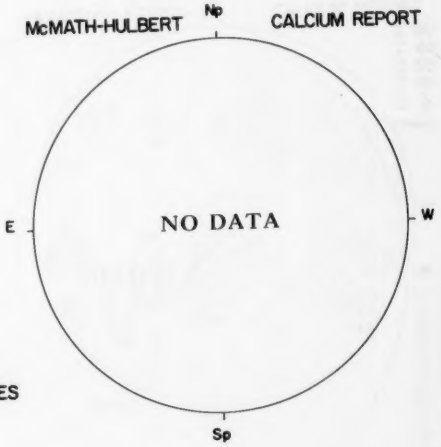
Hα BOULDER



SUNSPOTS

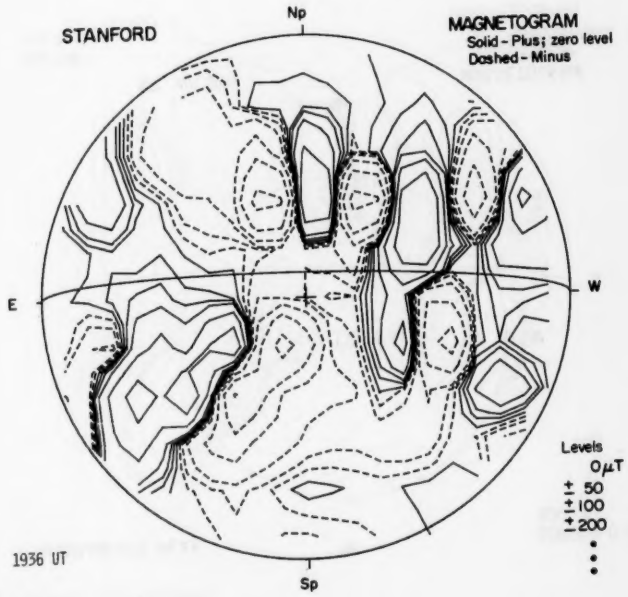
PROMINENCES

McMATH-HULBERT



CALCIUM REPORT

STANFORD



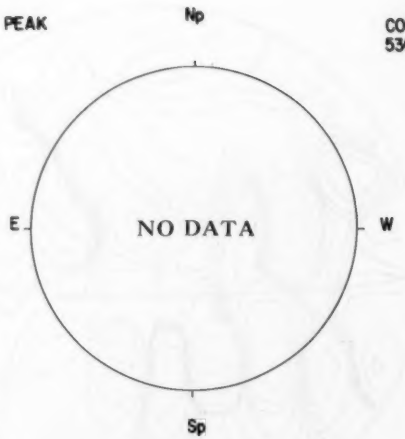
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

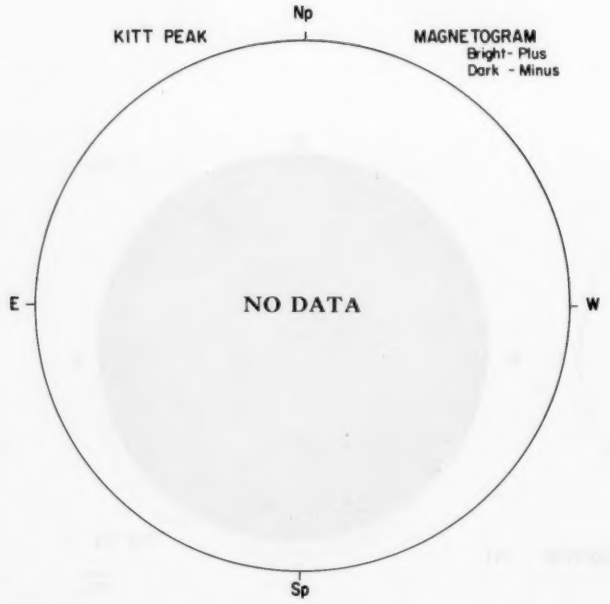
1936 UT

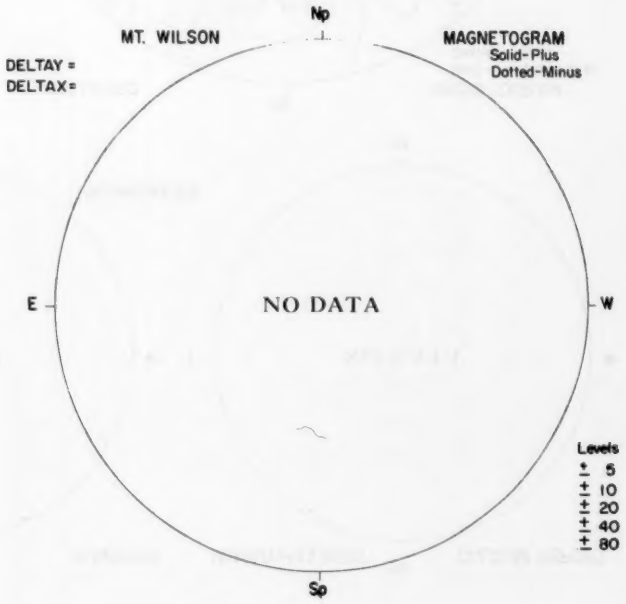
JANUARY 26, 1979 (P =-9.43, B_0 =-5.54, L_0 = 113.55)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

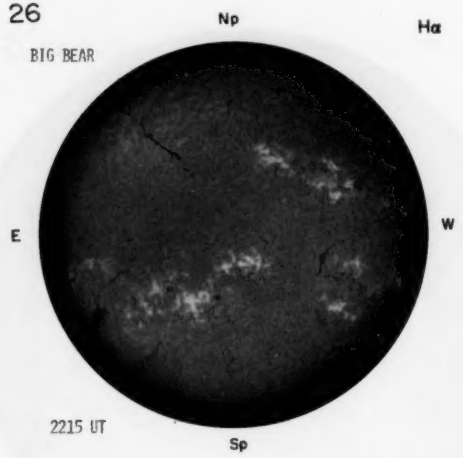






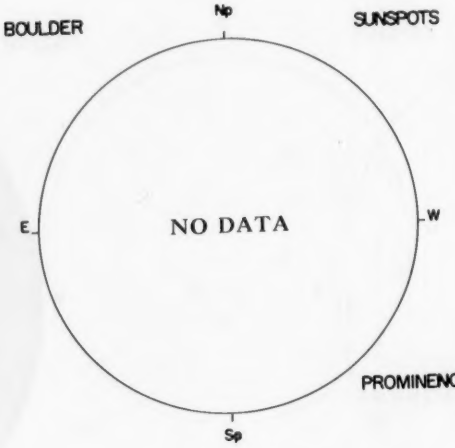
26

BIG BEAR



2215 UT

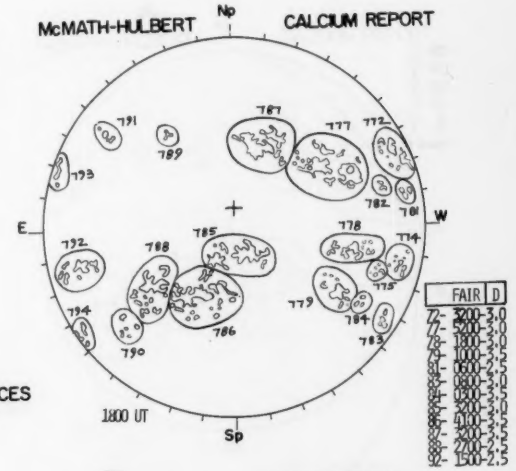
Hα BOULDER



SUNSPOTS

PROMINENCES

McMATH-HULBERT CALCIUM REPORT



1800 UT

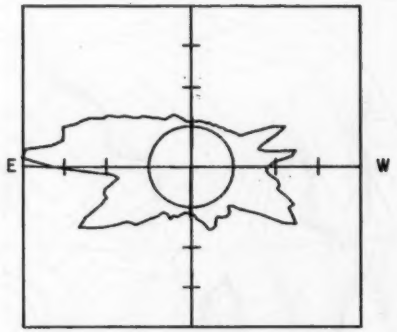
	FAIR	D
Z-	300	3.0
Z-	500	3.0
Z-	1000	3.0
Z+	1000	3.5
Z-	1000	3.5
Z-	1000	3.5
Z-

JANUARY 27, 1979 (P =-9.86, B_o =-5.63, L_o = 100.39)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



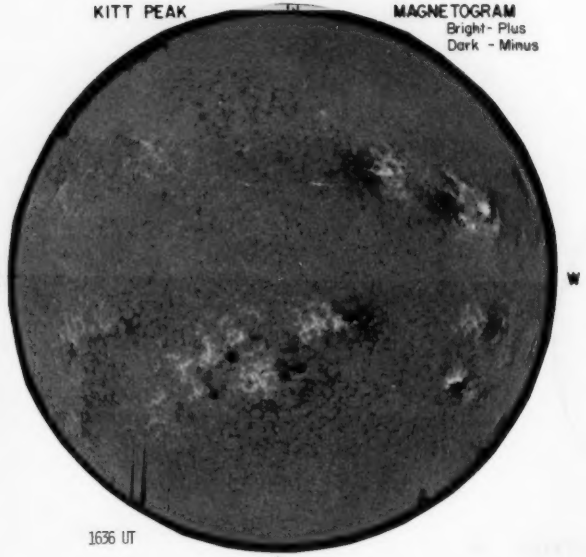
1607 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1636 UT

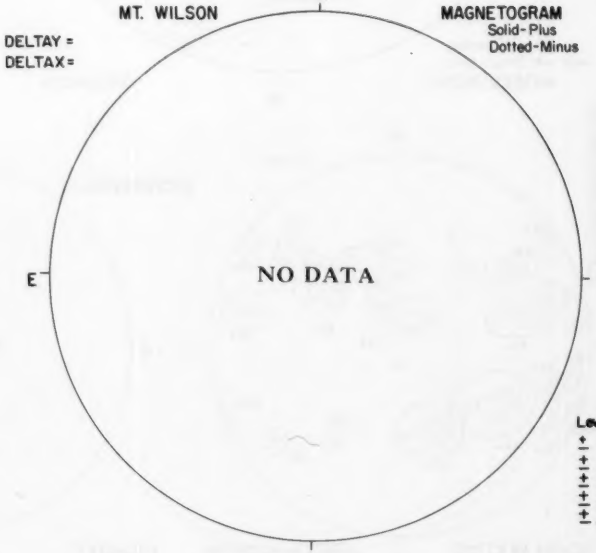
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

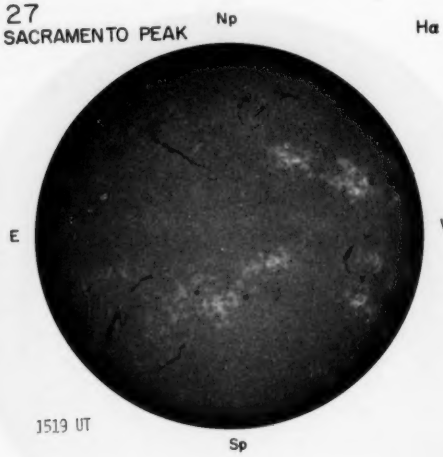
DELTAY =
DELTAX =



Sp

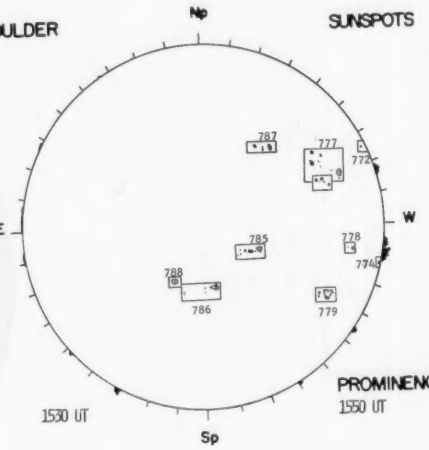
27

SACRAMENTO PEAK



1519 UT

Hα BOULDER



1530 UT

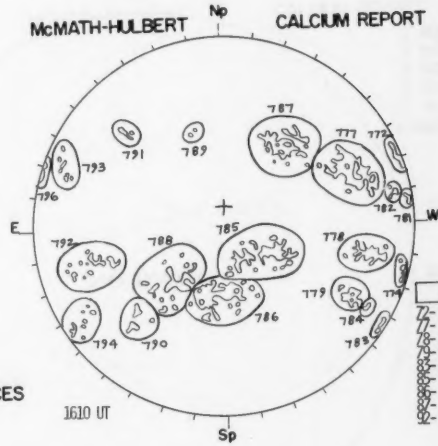
SUNSPOTS

PROMINENCES

1550 UT

McMATH-HULBERT

CALCIUM REPORT



1610 UT

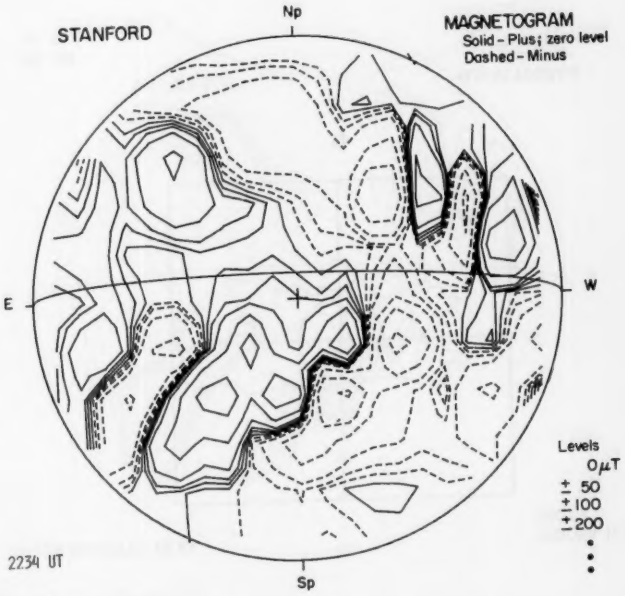
	POOR	S
72-	2500	2.5
77-	5300	3.0
78-	2100	3.0
79-	1800	3.0
83-	0300	2.5
85-	3000	3.0
86-	3800	3.0
87-	3000	3.0
92-	1200	2.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

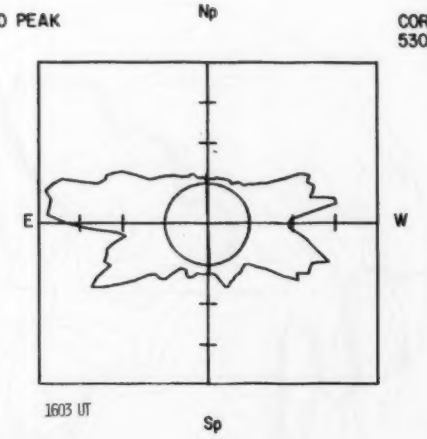
Dashed - Minus

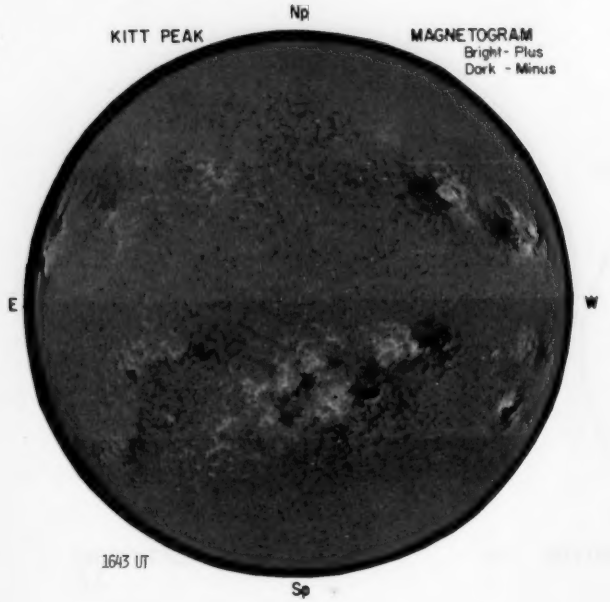


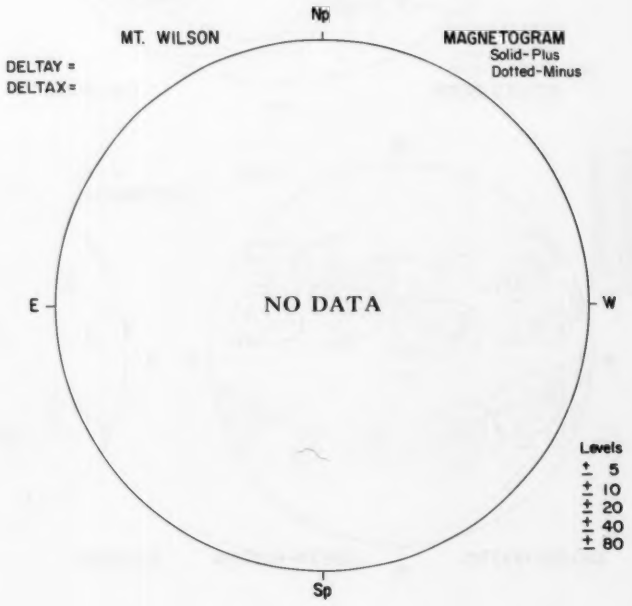
2234 UT

JANUARY 28, 1979 (P=-10.29, B_o=-5.71, L_o=87.22)

SACRAMENTO PEAK





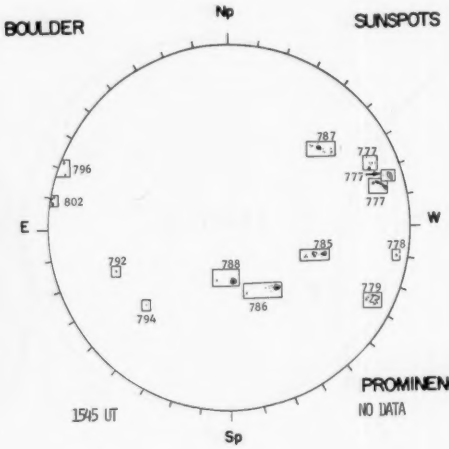


28

SACRAMENTO PEAK

1521 UT

Hα BOULDER



1545 UT

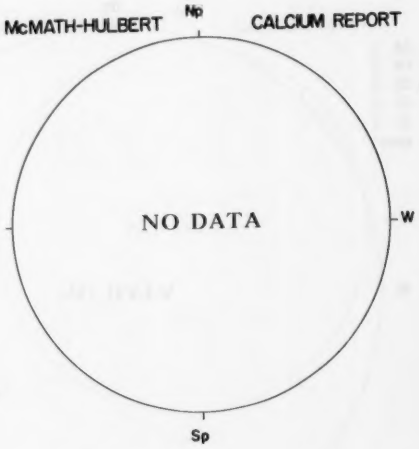
SUNSPOTS

PROMINENCES

NO DATA

McMATH-HULBERT

CALCIUM REPORT

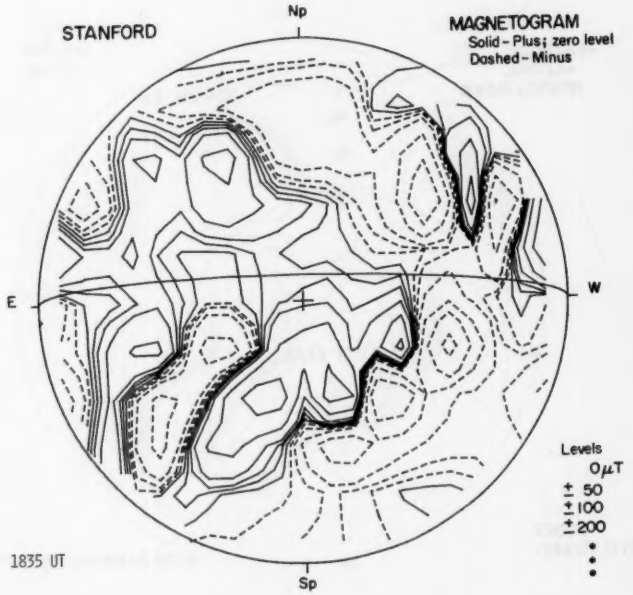


STANFORD

MAGNETOGRAM

Solid - Plus; zero level

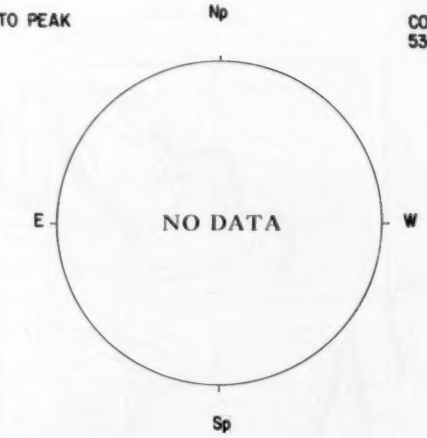
Dashed - Minus

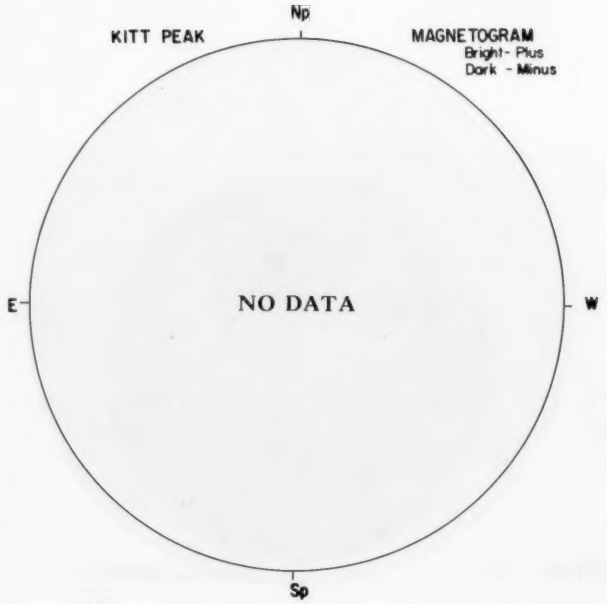


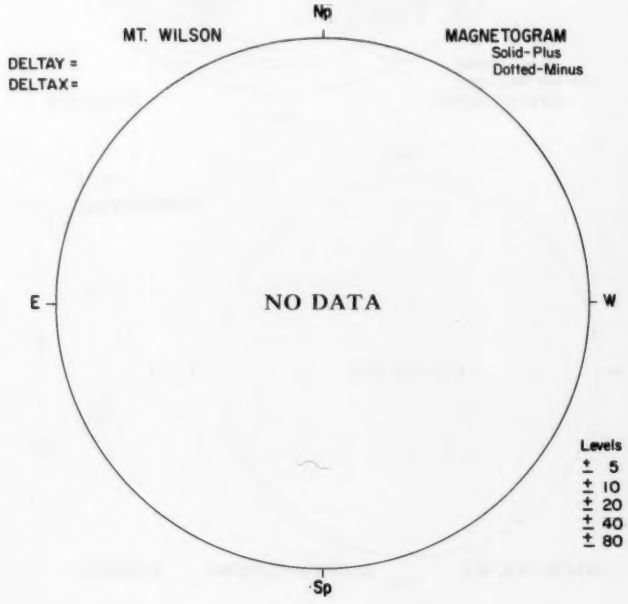
1835 UT

JANUARY 29, 1979 (P =-10.72, B_o =-5.79, L_o = 74.06)

SACRAMENTO PEAK

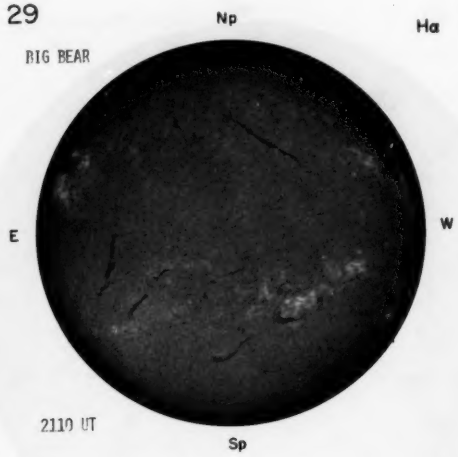




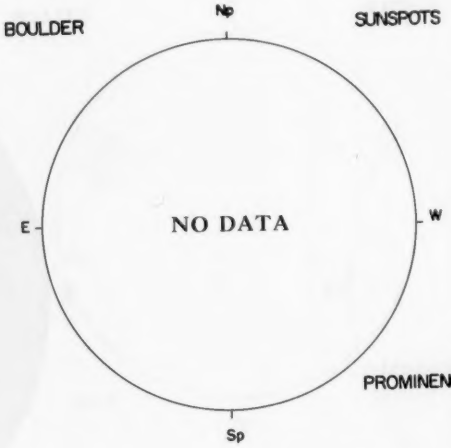


29

BIG BEAR

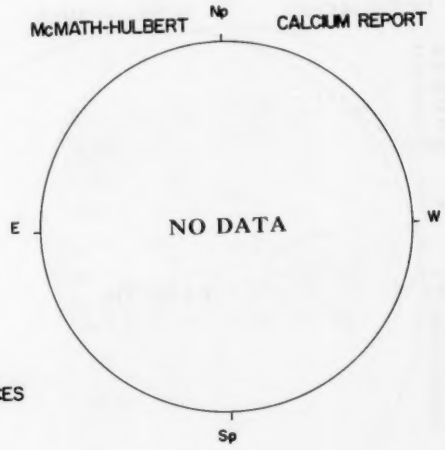


Hα BOULDER



SUNSPOTS

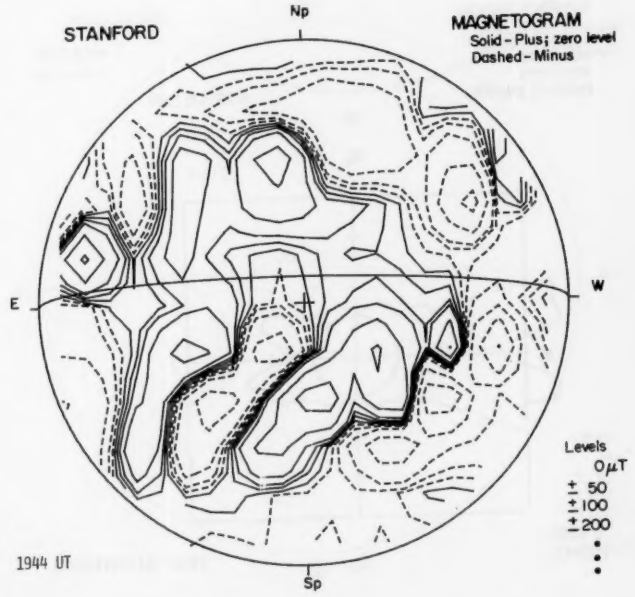
McMATH-HULBERT



CALCIUM REPORT

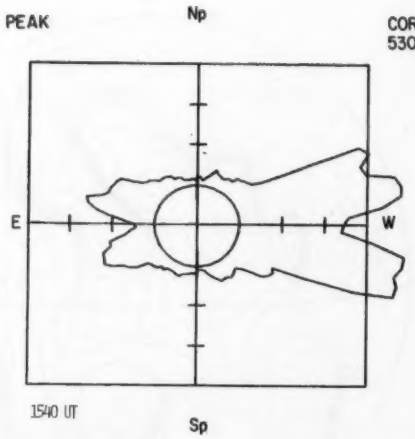
PROMINENCES

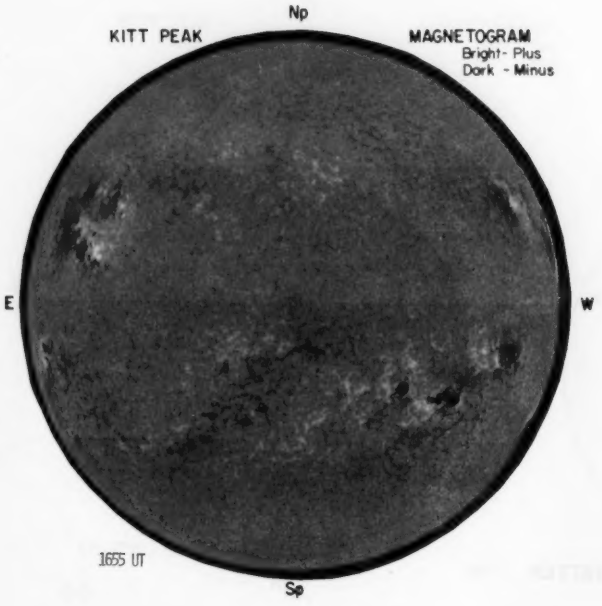
STANFORD

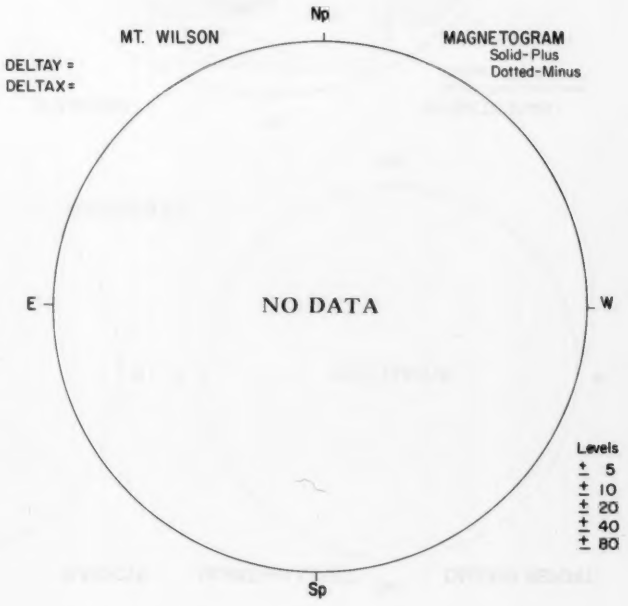


JANUARY 30, 1979 (P =-11.14, B_o =-5.86, L_o = 60.89)

SACRAMENTO PEAK



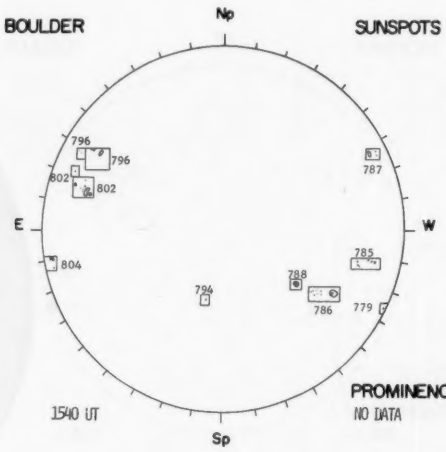




30

SACRAMENTO PEAK

Hα BOULDER



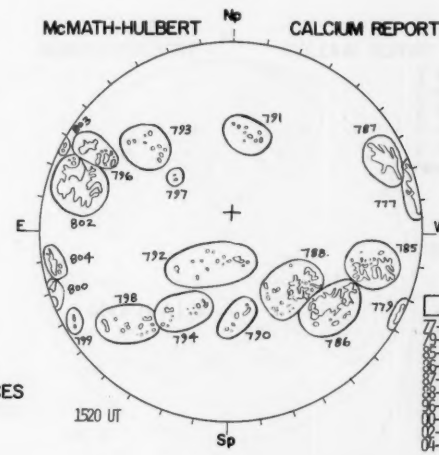
SUNSPOTS

PROMINENCES

NO DATA

McMATH-HULBERT

CALCIUM REPORT



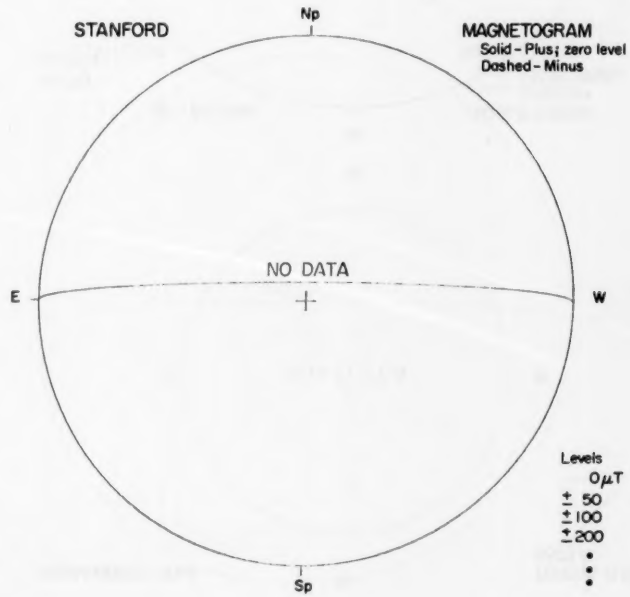
FAIR | M

77- 4000-2.5
79- 1800-3.0
85- 3000-3.5
86- 3200-3.5
87- 3700-3.5
88- 2300-2.5
90- 2400-3.5
00- 2520-3.5
02- 6300-3.5
04- 3000-3.0

STANFORD

MAGNETOGRAM

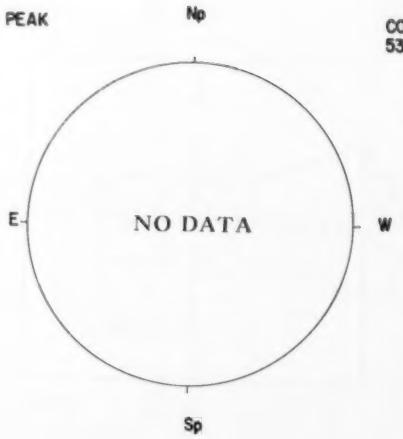
Solid – Plus; zero level
Dashed – Minus

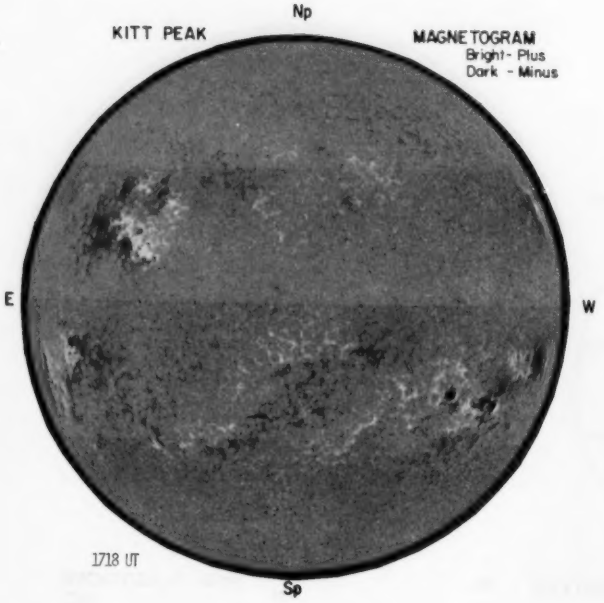


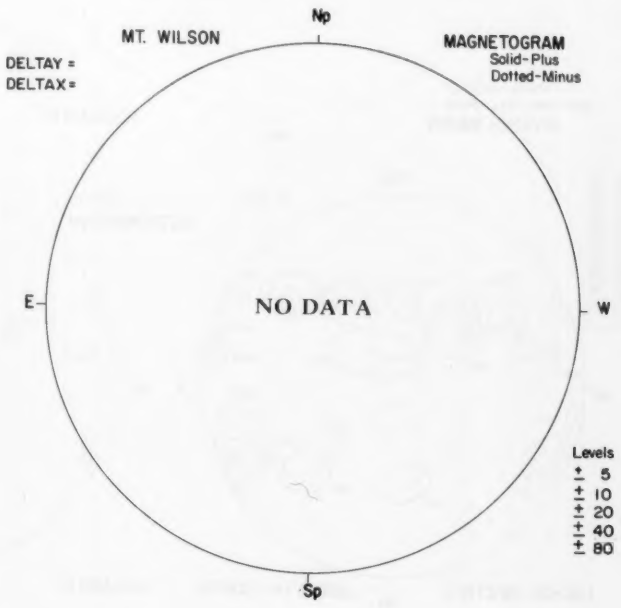
JANUARY 31, 1979 (P=-11.56, B_o=-5.94, L_o=47.72)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å





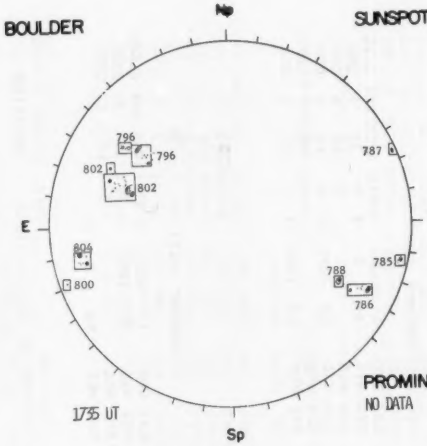


31

SACRAMENTO PEAK

1554 UT

Hα BOULDER



1735 UT

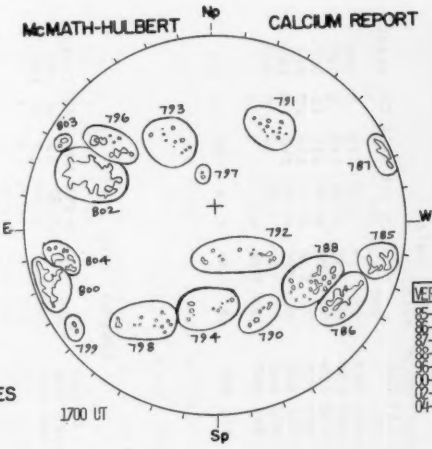
SUNSPOTS

PROMINENCES

NO DATA

McMATH-HULBERT

CALCIUM REPORT



1700 UT

VERY POOR|M

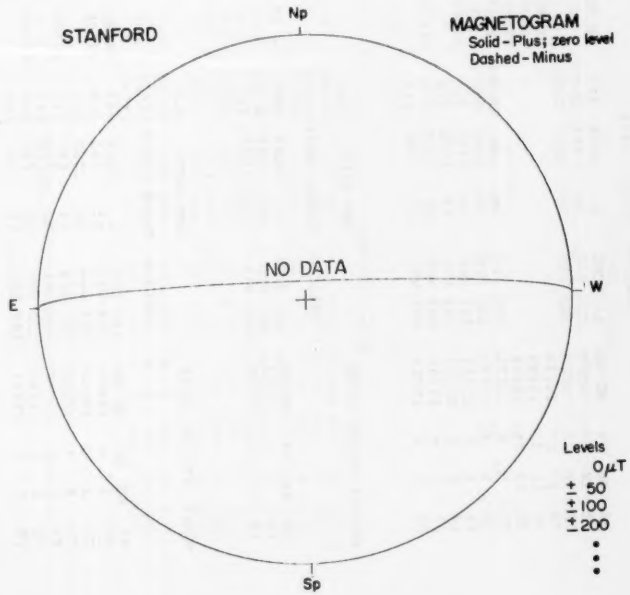
85- 2700-3.0
86- 2800-3.0
87- 2900-3.0
88- 2600-3.5
89- 2200-3.0
90- 2500-3.0
91- 2500-3.0
92- 2500-3.0
94- 3000-3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0μT

±50

±100

±200

• • •

REGIONS OF SOLAR ACTIVITY

JANUARY 1979

MCMATH REGION 15739 CMP DATE 1.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	27	15739	S33 E66	72	400	2.5									
78	12	28	15739	S33 E53	73	1000	3.5		S31 E49				B	70	2	CAO
78	12	29	15739					20377	S33 E38	74	(B)	3	M	100	9	DSO
78	12	30	15739					20377	S33 E25	75	(BY)	4	B	210	11	DAI
78	12	31	15739					20377	S32 E12	75	(B)	3	R	180	15	DAO
79	1	2	15739	S33 W14	74	1800	2.5	20377	S32 W16	75	BP	4	M	240	14	EKO
79	1	3	15739	S33 W28	75	2000	2.5		S33 W40				M	70	1	HSX
79	1	4	15739	S33 W40	75	2000	2.5	20377	S32 W47	80	(AP)	4				
79	1	5	15739	S33 W51	72	1600	2.5									
79	1	6	15739	S33 W60	68	1800	2.5	20377	S32 W72	80	(AP)	3	R	60	1	HSX
79	1	8	15739	S33 W85	67	300	1.0									

MCMATH REGION 15752 CMP DATE 1.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	3	15752	N25 W23	70	200	2.0		N26 W27				M	10	1	AXX
79	1	4	15752	N25 W36	71	200	2.0		N26 W39				M	10	1	AXX

MCMATH REGION 15742 CMP DATE 2.4 (PROBABLY NEW)

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15742	S20 W03	63	800	2.5	20385	S20 W03	62	B	3	M	30	6	DRO
79	1	3	15742	S20 W15	62	1000	2.5		S20 W18				M	40	5	DRO
79	1	4	15742	S20 W28	63	800	2.5	20385	S19 W30	63	(BP)	3	M	40	4	DRO
79	1	5	15742	S20 W41	62	700	1.5		S18 W43				B	20	2	CSO
79	1	6	15742	S20 W54	62	700	2.0	20385	S20 W60	68	(AP)	3	R	20	4	BXO
79	1	8	15742	S20 W81	63	500	1.5									

MCMATH REGION 15755 CMP DATE 3.1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15755	N26 W47	55	300	2.5	20389	N26 W49	57	(AP)	2	R	20	3	BXO
79	1	7	15755						N27 W61				B	10	2	CRO
79	1	8	15755	N26 W77	59	1000	2.5	20389	N26 W69	51	B	3				

MCMATH REGION 15743 CMP DATE 3.7 POSSIBLY RETURN OF REGION 15688 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15743	N29 E13	47	500	1.0									
79	1	3	15743	N29 E01	46	500	1.5									

MCMATH REGION 15741 CMP DATE 3.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	28	15741	S12 E85	41	500	3.0									
78	12		15741					20380	S11 E70	42	AP	2	M	40	1	HSX
78	12		15741					20381	S18 E75	37	(AP)	2	M	90	1	HSX
78	12		15741					20380	S12 E59	41	(AF)	3	B	80	6	DSI
78	12		15741					20381	S18 E61	39	(AP)	3	B	60	1	HSX
78	12		15741					20383	N14 E70	30	(AP)	3	B	100	1	HHX
78	12		15741					20380	S12 E44	43	(B)	4	R	90	12	DSO
78	12		15741					20381	S19 E48	39	(AP)	3				
78	12		15741					20383	N13 E60	27	(AP)	3	R	100	9	CSO
79	1	2	15741	S13 E16	44	2300	3.0	20380	S12 E15	44	B	4	M	200	26	DKI
79	1	3	15741	S13 E03	44	2800	3.0		S12 E00				M	320	32	EKI
79	1	4	15741	S13 W08	43	3000	2.5	20380	S12 W11	44	(BF)	4	M	280	27	EKI
79	1	5	15741	S13 W21	42	2500	2.5		S12 W24				B	200	16	EAO
79	1	6	15741	S13 W33	41	2800	3.0	20380	S13 W37	45	(B)	3	R	120	18	EAO
79	1	7	15741						S13 W52				B	460	4	ESO
79	1	8	15741	S13 W63	45	2800	2.5	20380	S13 W61	43	B	3				
79	1	9	15741	S13 W76	43	2800	2.5									
79	1	10	15741	S13 W89	44	700	2.0									

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MCMATH REGION 15744 CMP DATE 4.0 RETURN OF PART OF REGION 15691 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15744	N19 E20	40	900	2.0	20379	N17 E16	43	AP	2	H	20	1	HRX
79	1	3	15744	N20 E05	42	1200	2.0									
79	1	4	15744	N19 W10	45	1100	2.0									
79	1	5	15744	N19 W21	42	1200	2.0		N17 W32				B	30	3	CSO
79	1	6	15744	N18 W38	46	1200	3.0	20388	N16 W43	51	(BF)	4	R	60	11	DRO
79	1	8	15744	N18 W68	50	1200	3.0	20388	N16 W70	52	AP	2	H	40	3	CRO
79	1	9	15744	N18 W81	48	800	1.0									

MCMATH REGION 15740 CMP DATE 4.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	29	15740					20382	S35 E71	41	(BY)	3	H	450	7	EKO
78	12	30	15740					20382	S35 E60	40	(B)	3	B	530	8	EKI
78	12	31	15740					20382	S35 E47	40	(B)	4	R	400	24	EKO
79	1	2	15740	S35 E22	38	2800	2.5	20382	S35 E21	38	B	4	H	360	10	EKI
79	1	3	15740	S35 E10	37	3400	3.0		S35 E05				H	380	27	EKI
79	1	4	15740	S35 W03	38	3400	3.0	20382	S35 W03	36	(B)	4	H	380	21	EKI
79	1	5	15740	S35 W14	35	2600	3.0		S33 W18				B	330	17	EKO
79	1	6	15740	S35 W26	34	3000	3.0	20382	S35 W30	38	BP	4	R	290	20	CKO
79	1	7	15740						S33 W43				B	150	9	EKO
79	1	8	15740	S33 W52	34	2600	2.5	20382	S34 W56	38	AP	4	H	160	5	EAO
79	1	9	15740	S34 W65	32	3000	3.0	20382	S35 W75	40	B	4	B	80	4	DAO
79	1	10	15740	S35 W77	32	2700	3.0	20382	S35 W82	38	B	3	B	20	1	HRX
79	1	11	15740	S35 W88	32	800	1.5									

MCMATH REGION 15746 CMP DATE 4.9 RETURN OF REGION 15634 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15746	S22 E30	30	1800	3.0									
79	1	3	15746	S21 E17	30	2100	2.5									
79	1	4	15746	S21 E04	31	2400	2.5									
79	1	5	15746	S21 W08	29	2000	2.0									
79	1	6	15746	S20 W21	29	2200	2.5									
79	1	8	15746	S20 W51	33	2400	2.0		S12 W52				H	80	4	DRO
79	1	9	15746	S20 W65	32	2100	2.0		S20 W70				B	60	1	HSX
79	1	10	15746	S20 W78	33	1000	2.5									

MCMATH REGION 15745 CMP DATE 5.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15745	N14 E32	28	1900	3.0	20383	N13 E31	28	BP	4	H	140	9	DSO
79	1	3	15745	N15 E20	27	1800	3.0		N13 E14				H	150	6	CSO
79	1	4	15745	N14 E06	29	2200	2.5	20383	N13 E03	30	(AP)	4	H	180	7	CSO
79	1	5	15745	N14 W05	26	2200	2.5		N12 W10				B	170	3	CHO
79	1	6	15745	N14 W18	26	2000	2.5	20383	N13 W23	31	(AP)	5	R	110	1	HSX
79	1	7	15745						N13 W37				B	110	2	HSX
79	1	8	15745	N15 W46	28	1800	2.5	20383	N12 W49	31	(AP)	4	H	180	1	HSX
79	1	9	15745	N15 W60	27	1500	2.5	20383	N13 W67	32	(AP)	3	B	120	1	HSX
79	1	10	15745	N15 W73	28	1100	1.5	20383	N13 W75	31	AP	4	B	60	1	AHX
79	1	11	15745	N16 W75	19	200	1.0									

MCMATH REGION 15758 CMP DATE 7.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15758	N07 W21	3	200	2.0									
79	1	9	15758	N07 W36	3	100	1.0									

MCMATH REGION 15766 CMP DATE 7.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	10	15766	N23 W44	359	100	1.0									
79	1	11	15766	N23 W58	2	600	3.0	20401	N23 W54	357	(BP)	2	B	40	3	CRO

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MCMATH REGION 15766 (CONT) CMP DATE 7.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15766	N24 W70	359	600	2.0									

MCMATH REGION 15747 CMP DATE 7.7 RETURN OF REGION 15696 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15747	S25 E63	358	1200	1.5									
79	1	3	15747	S25 E58	350	1500	2.0									
79	1	4	15747	S24 E44	352	1400	2.0									
79	1	5	15747	S24 E33	349	1200	1.5									
79	1	6	15747	S25 E16	353	1200	1.5									
79	1	8	15747	S25 W13	355	1200	1.0									
79	1	9	15747	S25 W23	350	800	1.0									
79	1	10	15747	S25 W36	351	800	1.0									
79	1	11	15747	S25 W50	354	700	1.0									
79	1	12	15747	S25 W61	350	600	1.0									

MCMATH REGION 15749 CMP DATE 8.3 RETURN OF REGION 15715 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15749	N13 E77	344	700	2.0									
79	1	3	15749	N12 E62	346	800	3.0									
79	1	4	15749	N12 E48	348	800	3.0									
79	1	5	15749	N12 E35	347	800	3.0		N09 E35				B	20	3	CSO
79	1	6	15749	N11 E22	347	1000	3.0	20390	N08 E23	346	B	3	R	50	10	CRO
79	1	7	15749						N10 E08				B	140	14	DAI
79	1	8	15749	N11 W05	347	1900	3.0	20390	N10 W04	346	(B)	4	H	230	30	DAI
79	1	9	15749	N10 W20	347	2200	3.0	20390	N10 W23	348	(B)	5				
79	1	10	15749	N10 W32	347	3400	3.0	20390	N10 W32	348	(B)	4	B	850	9	EKI
79	1	11	15749	N10 W46	350	3600	3.0	20390	N10 W46	349	(B)	4	B	750	17	EKI
79	1	12	15749	N10 W58	347	3500	3.0	20390	N10 W60	347	(B)	4	B	430	7	FSO
79	1	13	15749					20390	N10 W70	346	(B)	4	B	160	4	CSI
79	1	14	15749	N10 W83	347	2700	2.5		N10 W78				H	930	4	EKI

MCMATH REGION 15748 CMP DATE 8.9 RETURN OF REGION 15697 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15748	S17 E80	341	1100	1.5									
79	1	3	15748	S17 E73	335	4200	3.0		S16 E72				H	240	6	DAO
79	1	4	15748	S16 E59	337	4800	3.0	20387	S17 E63	331	BF	4	H	270	12	DSO
79	1	5	15748	S16 E46	336	4200	3.0		S17 E49				B	340	7	DAI
79	1	6	15748	S16 E33	336	4200	3.5	20387	S17 E38	331	BF	5	R	290	16	DHO
79	1	7	15748						S17 E23				B	200	8	DHO
79	1	8	15748	S17 E03	339	4400	3.0	20387	S17 E13	329	BF	5				
79	1	9	15748	S17 W10	337	4200	3.0	20387	S18 W05	330	(BF)	5	B	250	8	DHO
79	1	10	15748	S17 W22	337	4200	2.5	20387	S18 W14	330	(Y)	5	B	260	7	DHI
79	1	11	15748	S17 W34	338	4500	3.0	20387	S17 W28	331	Y	5	B	310	11	DKI
79	1	12	15748	S17 W46	335	4200	3.0	20387	S18 W43	330	(Y)	4	B	310	12	DKI
79	1	13	15748					20387	S17 W52	328	(Y)	4	B	290	12	DSI
79	1	14	15748	S17 W70	334	4100	3.0		S17 W59				H	680	12	EKC
79	1	15	15748	S17 W82	332	3000	3.0		S17 W79				B	560	8	EAI
79	1	16	15748	S16 W90	327	800	2.0									

MCMATH REGION 15750 CMP DATE 8.9 RETURN OF REGION 15700 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15750	N25 E82	339	1000	3.0		N23 E80				H	280	6	DAO
79	1	3	15750	N25 E77	331	4000	2.5		N23 E68				H	210	7	DAO
79	1	4	15750	N24 E55	341	1000	2.5	20386	N25 E52	342	B	4	H	170	10	DAO
79	1	5	15750	N24 E44	338	3600	2.5		N23 E37				B	140	3	DAI
79	1	6	15750	N24 E31	338	3300	2.5	20386	N25 E26	343	B	3	R	120	12	DRO
79	1	7	15750						N24 E11				B	90	7	DSI
79	1	8	15750	N24 E03	339	3200	2.5	20386	N25 W01	343	B	3	H	100	13	DSO
79	1	9	15750	N24 W10	337	3600	2.5	20386	N25 W19	344	(AP)	3	B	10	2	BXO
79	1	10	15750	N24 W22	337	3600	2.0	20386	N25 W27	343	(B)	2				
79	1	11	15750	N24 W35	339	3600	2.5		N24 W43				B	30	1	HSX
79	1	12	15750	N24 W47	336	3200	2.5									
79	1	14	15750	N24 W68	332	2500	2.0									

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MCMATH REGION 15750 (CONT) CMP DATE 8.9 RETURN OF REGION 15700 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15750	N24 W78	328	600	1.0									

MCMATH REGION 15753 CMP DATE 10.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	4	15753	N17 E78	318	300	2.0		N17 E87				H	280	1	HSX
79	1	5	15753	N18 E67	315	500	2.0		N17 E77				B	140	2	CSO
79	1	6	15753	N18 E50	319	400	2.0									
79	1	8	15753	N18 E25	317	700	2.0									
79	1	9	15753	N18 E10	317	700	2.5									
79	1	10	15753	N18 W02	317	400	2.0									
79	1	11	15753	N18 W16	320	400	2.0									
79	1	12	15753	N18 W28	317	300	1.5									
79	1	14	15753	N18 W54	318	300	2.5									
79	1	15	15753	N18 W66	316	300	1.5		N16 W54				B	100	4	CSO

MCMATH REGION 15764 CMP DATE 10.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	10	15764	S27 W01	316	200	1.5	20399	S27 W01	317	B	2				
79	1	11	15764	S26 W13	317	200	1.5									
79	1	12	15764	S26 W26	315	100	1.0									

MCMATH REGION 15754 CMP DATE 12.2 RETURN OF REGIONS 15704 AND 15717 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	5	15754	N19 E86	296	1200	3.0									
79	1	6	15754	N18 E70	299	3100	3.0	20391	N17 E68	301	AP	4	R	290	9	EHO
79	1	8	15754	N19 E44	298	5000	3.0	20391	N17 E36	306	(AP)	5	H	210	26	ESO
79	1		15754					20393	N18 E51	291	B	4	H	260	13	ESO
79	1	9	15754	N19 E32	295	4700	3.0	20391	N17 E23	302	(BP)	5	B	220	14	ESI
79	1		15754					20393	N17 E40	285	(B)	4	B	120	9	DSO
79	1	10	15754	N19 E20	295	4900	3.5	20391	N17 E14	302	(BP)	4	B	100	10	ESI
79	1		15754					20393	N16 E27	289	(B)	3	B	160	4	EAO
79	1	11	15754	N19 E08	296	5500	3.5	20391	N18 W01	304	(BP)	4	B	170	14	ESO
79	1		15754					20393	N17 E14	289	(B)	3	B	260	24	EKI
79	1		15754					20402	N17 E18	285	(D)	3				
79	1	12	15754	N19 W05	294	5500	3.0	20391	N17 W20	307	(AP)	3	B	100	1	HSX
79	1		15754					20393	N15 W05	292	BP	3				
79	1		15754					20402	N16 E03	284	(AP)	3	B	340	20	EKO
79	1	13	15754					20391	N17 W31	307	(AP)	4	B	130	1	HSX
79	1		15754					20393	N14 W17	293	(AP)	4				
79	1		15754					20402	N16 W09	285	(Y)	4	B	240	23	EAC
79	1	14	15754	N18 W30	294	5500	3.5		N17 W33				H	90	5	CSO
79	1	15	15754	N18 W42	292	5300	3.5		N15 W37				B	420	22	EKI
79	1	16	15754	N18 W55	292	5500	3.5		N14 W49				B	350	9	EKI
79	1	17	15754	N18 W69	290	5000	3.0		N15 W65				B	340	10	EAI
79	1	18	15754	N18 W80	290	3800	3.5	20402	N16 W75	285	B	3				

MCMATH REGION 15756 CMP DATE 13.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15756	S09 E87	282	900	2.0		S10 E84				R	10	1	AXX
79	1	7	15756						S07 E68				B	10	1	AXX
79	1	8	15756	S11 E58	284	1000	3.0	20392	S08 E53	289	AP	3	H	10	2	AXX
79	1	9	15756	S10 E42	285	900	3.0									
79	1	10	15756	S10 E30	285	1300	3.0									
79	1	11	15756	S10 E16	288	1300	3.0		S12 E19				B	10	3	BXO
79	1	12	15756	S10 E04	285	1300	2.5									
79	1	14	15756	S10 W22	286	1500	2.0									
79	1	15	15756	S10 W35	285	1200	2.0									
79	1	16	15756	S10 W48	285	1200	2.0									
79	1	17	15756	S10 W62	283	1200	2.0									
79	1	18	15756	S11 W74	284	1200	1.5									

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MCMATH REGION 15773 CMP DATE 13.5

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15773	N12 W28	278	200	2.5		N10 W27				B	30	3	CSO
79	1	16	15773	N12 W41	278	500	2.5		N10 W40				B	20	3	CRO
79	1	17	15773	N12 W56	277	500	2.5		N10 W54				B	20	3	CRO
79	1	18	15773	N12 W68	278	500	2.0									

MCMATH REGION 15757 CMP DATE 13.6 RETURN OF REGION 15707 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15757	S21 E85	284	300	1.0									
79	1	8	15757	S25 E70	272	2000	3.5									
79	1	9	15757	S26 E52	275	2000	3.0	20395	S23 E42	283	B	2				
79	1	10	15757	S25 E38	277	1700	3.0	20395	S23 E34	282	(AP)	2	B	10	2	BXC
79	1	11	15757	S25 E25	279	2100	3.0	20395	S24 E26	277	B	3	B	30	3	CSO
79	1	12	15757	S23 E12	277	2100	2.5	20395	S27 E12	275	B	3				
79	1	13	15757					20395	S27 W01	277	(Y)	3	B	50	9	CRI
79	1	14	15757	S24 W12	276	2700	2.5		S23 W08				M	60	13	DSO
79	1	15	15757	S24 W25	275	2500	2.5		S24 W28				B	260	16	DAI
79	1	16	15757	S26 W39	276	2700	3.0		S26 W41				B	110	9	EAO
79	1	17	15757	S26 W52	273	2500	2.5		S26 W55				B	220	7	EKO
79	1	18	15757	S26 W63	273	2700	2.5	20395	S22 W78	288	AP	4				
79	1		15757					20405	S25 W64	274	AP	3				

MCMATH REGION 15769 CMP DATE 14.1

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15769	N16 W06	270	400	2.5		N15 E01				M	30	3	CRO
79	1	15	15769	N15 W20	270	500	2.0		N14 W19				B	40	3	DSO
79	1	16	15769	N15 W34	271	400	1.0		N13 W36				B	0	1	AXX
79	1	17	15769	N15 W49	270	200	1.0		N13 W50				B	10	1	AXX
79	1	18	15769	N14 W60	270	100	1.0		N15 W65				M	30	2	BXO

MCMATH REGION 15759 CMP DATE 14.6

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15759	N28 E80	262	500	2.5		N22 E72				M	50	1	HRX
79	1	9	15759	N28 E63	264	800	3.0	20396	N28 E60	265	(B)	3	B	10	3	BXO
79	1	10	15759	N28 E50	265	1000	3.0	20396	N27 E51	265	(B)	3	B	30	3	BXI
79	1	11	15759	N28 E36	268	1300	3.0	20396	N27 E37	266	(B)	2	B	60	2	DSO
79	1	12	15759	N28 E24	265	900	2.0	20396	N27 E22	265	B	2	B	10	2	BXO
79	1	13	15759					20396	N27 E09	267	(AP)	2	B	10	1	AXX
79	1	14	15759	N28 E00	264	800	2.5		N27 E04				M	10	2	BXO
79	1	15	15759	N28 W13	263	600	2.0									
79	1	16	15759	N28 W27	264	500	2.5									
79	1	17	15759	N28 W42	263	400	2.0									
79	1	18	15759	N28 W54	264	400	1.5									

MCMATH REGION 15760 CMP DATE 14.8

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	1576(	N21 E85	257	300	1.0		N18 E70				M	160	6	CRO
79	1	9	15760	N21 E67	260	200	1.5									
79	1	10	15760	N21 E54	261	100	1.5									
79	1	11	15760	N21 E40	264	300	2.5									
79	1	12	15760	N21 E28	261	100	1.0									

MCMATH REGION 15763 CMP DATE 15.0 RETURN OF REGION 15709 ROTATION 4

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15763	S25 E80	262	1000	1.5	20394	S27 E80	262	AP	4				
79	1	9	15763	S26 E66	261	800	2.0	20394	S27 E65	260	(AP)	3	B	50	1	HSX
79	1	10	15763	S26 E55	260	900	2.0	20394	S27 E55	261	(AP)	3	B	80	1	HAX
79	1	11	15763	S25 E41	263	1000	2.0	20394	S27 E41	262	AP	3	B	50	2	DSO

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MCMATH REGION 15763 (CONT) CMP DATE 15.0

RETURN OF PART OF REGION 15709 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	12	15763	S25 E29	260	1000	1.5
79	1	13	15763				
79	1	14	15763	S25 E05	259	700	1.5
79	1	15	15763	S27 W07	257	600	1.5
79	1	16	15763	S27 W21	258	400	1.5
79	1	17	15763	S27 W35	256	500	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20394	S27 E28	259	AP	2	B	10	2	AXX
20394	S27 E17	259	(AP)	2	B	10	1	AXX
	S26 W03				M	20	3	BXO

MCMATH REGION 15761 CMP DATE 15.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	8	15761	S16 E85	257	600	1.0
79	1	9	15761	S15 E76	251	1400	2.0
79	1	10	15761	S15 E63	252	1100	2.5
79	1	11	15761	S15 E50	254	1200	2.5
79	1	12	15761	S15 E36	253	1400	2.5
79	1	14	15761	S14 E10	254	1000	2.5
79	1	15	15761	S16 W04	254	700	2.0
79	1	16	15761	S15 W20	257	600	2.0
79	1	17	15761	S15 W36	257	400	2.0
79	1	18	15761	S15 W47	257	400	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20397	S12 E75	250	AP	2				
20397	S13 E67	249	AP	2				
	S19 E49				B	0	1	AXX
	S17 E15				M	20	3	BXO
	S13 W09				B	20	3	CSO

MCMATH REGION 15762 CMP DATE 16.2

RETURN OF REGIONS 15714 AND PART OF 15709 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	9	15762	S24 E82	245	1700	2.0
79	1	10	15762	S24 E73	242	3000	3.0
79	1		15762				
79	1	11	15762	S23 E59	245	3500	3.0
79	1	12	15762	S24 E47	242	3700	3.0
79	1	13	15762				
79	1	14	15762	S24 E20	244	3700	3.0
79	1	15	15762	S24 E07	243	3500	2.5
79	1	16	15762	S24 W08	245	3600	3.0
79	1	17	15762	S23 W24	245	3200	3.0
79	1	18	15762	S23 W35	245	3600	3.0
79	1	19	15762				
79	1	20	15762				
79	1	22	15762	S23 W67	244	1400	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20398	S23 E80	245	AP	3				
20398	S20 E61	255	AP	2				
20400	S23 E69	247	AP	3	B	0	2	BXI
20400	S24 E55	248	B	2	B	70	3	DSO
20400	S22 E35	252	(B)	3	B	70	4	CRI
20400	S22 E24	252	(B)	3	B	100	14	BXC
	S24 E22				M	110	20	DSI
	S23 W16				B	470	20	EKI
	S24 W29				B	410	18	EKI
20400	S22 W43	253	BP	4				
20400	S22 W56	253	B	4				
20400	S22 W70	254	BP	4				

MCMATH REGION 15765 CMP DATE 16.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	10	15765	N17 E80	235	200	1.5
79	1	11	15765	N17 E66	238	500	1.0
79	1	12	15765	N17 E55	234	200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20403	N16 E61	242	(AP)	2				

MCMATH REGION 15780 CMP DATE 16.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15780	N13 W75	232	300	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15776 CMP DATE 17.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	16	15776	N21 E10	227	300	2.5
79	1	17	15776	N20 W06	227	400	1.5
79	1	18	15776	N20 W17	227	400	1.5
79	1	22	15776	N20 W69	226	400	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N19 E06				B	30	2	CSO
	N20 W03				B	20	2	BXX
20406	N20 W19	229	B	2	M	20	2	CRO

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MCMATH REGION 15768 CMP DATE 18.3 RETURN OF REGION 15712 ROTATION 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15768	N10 E74	211	700	1.5	20404	N10 E73	214	(AP)	3				
79	1	13	15768					20404	N10 E61	215	(AP)	4	B	90	1	HSX
79	1	14	15768	N10 E50	214	1000	3.0		N10 E58				M	140	3	CSO
79	1	15	15768	N12 E36	214	1100	2.5		N09 E35				B	120	4	DSO
79	1	16	15768	N12 E22	215	1200	2.0		N09 E20				B	150	3	CSO
79	1	17	15768	N12 E07	214	1200	2.0		N10 E08				B	170	3	DHO
79	1	18	15768	N11 W05	215	1200	2.5	20404	N10 W07	217	BF	4	M	150	9	DAO
79	1	19	15768					20404	N10 W19	216	(B)	3				
79	1	20	15768					20404	N10 W33	217	(BF)	4				
79	1	22	15768	N10 W58	215	800	2.5	20404	N10 W56	213	(AP)	4				
79	1	23	15768	N11 W72	216	800	1.5	20404	N11 W70	214	(AP)	3				

MCMATH REGION 15767 CMP DATE 16.5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15767	S25 E77	212	1500	1.5									
79	1	14	15767	S25 E53	211	1900	1.5									
79	1	15	15767	S25 E40	210	1200	2.0									
79	1	16	15767	S25 E26	211	1500	2.0									
79	1	17	15767	S25 E10	211	1300	1.5									
79	1	18	15767	S25 W01	211	1400	2.5	20407	S22 W01	211	B	3	M	100	11	DSO
79	1	19	15767					20407	S23 W14	211	(B)	3				
79	1	20	15767					20407	S23 W27	211	(BF)	4				
79	1	22	15767	S24 W53	210	2100	3.0	20407	S23 W54	211	(B)	4				
79	1	23	15767	S24 W65	209	2100	3.0	20407	S23 W66	210	(B)	3				

MCMATH REGION 15771 CMP DATE 18.7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15771	N22 E54	210	400	1.5									
79	1	15	15771	N22 E41	209	300	1.5									
79	1	16	15771	N22 E27	210	300	1.5									
79	1	17	15771	N22 E12	209	300	1.5									
79	1	18	15771	N22 E00	210	200	1.5									
79	1	22	15771	N22 W51	208	100	1.0									

MCMATH REGION 15789 CMP DATE 19.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	23	15789	N30 W49	206	100	1.0									
79	1	26	15789	N25 E22	95	300	2.0									
79	1	27	15789	N25 E10	94	200	2.0									

MCMATH REGION 15770 CMP DATE 20.0 RETURN OF REGION 15721 ROTATION 4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15770	S16 E70	194	400	2.0									
79	1	15	15770	S16 E58	192	500	2.0		S17 E55				B	20	2	BXO
79	1	16	15770	S16 E45	192	500	1.5									
79	1	17	15770	S16 E29	192	300	1.0									

MCMATH REGION 15783 CMP DATE 21.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	20	15783					20414	S36 E06	178	(B)	2				
79	1	22	15783	S33 W19	176	800	2.0	20414	S34 W20	177	(B)	3				
79	1	23	15783	S33 W31	175	800	2.5	20414	S34 W34	178	(BF)	3				
79	1	25	15783					20414	S34 W55	172	(AP)	2				
79	1	26	15783	S33 W70	174	800	3.0									
79	1	27	15783	S33 W80	171	800	2.5									

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MCMATH REGION 15772 CMP DATE 21.3 RETURN OF REGIONS 15722 AND 15723 ROTATION 2

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15772	N18 E84	180	700	1.5									
79	1	15	15772	N20 E72	178	2000	3.0		N19 E75				B	70	4	DSI
79	1	16	15772	N20 E60	177	2900	3.0		N19 E64				B	210	3	CKO
79	1	17	15772	N20 E45	176	3100	3.0		N19 E50				B	300	6	CAO
79	1	18	15772	N20 E35	175	3100	3.0	20408	N19 E36	174	BP	4	H	3150	11	EXX
79	1	19	15772					20408	N19 E25	172	(Y)	3				
79	1	20	15772					20408	N19 E16	168	(B)	4				
79	1		15772					20413	N18 E08	176	(Y)	4				
79	1	22	15772	N19 W18	175	4000	3.5	20408	N19 W09	166	(D)	4				
79	1		15772					20413	N18 W18	175	(Y)	4				
79	1	23	15772	N19 W31	175	4000	3.0	20408	N20 W23	167	(BF)	4				
79	1		15772					20413	N18 W31	175	(Y)	4				
79	1	25	15772					20408	N22 W49	166	(AF)	3				
79	1		15772					20413	N18 W60	177	(AP)	3				
79	1	26	15772	N19 W70	174	3200	3.0	20408	N22 W61	166	(AF)	3				
79	1		15772					20413	N19 W75	180	(AP)	2				
79	1	27	15772	N19 W83	174	2500	2.5	20408	N21 W75	166	AF	3				

MCMATH REGION 15781 CMP DATE 21.6

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15781	N09 W13	170	100	1.5	20419	N08 W14	171	(AP)	2				
79	1	23	15781	N09 W26	170	100	1.5	20419	N08 W25	169	(AF)	2				
79	1	25	15781					20419	N07 W50	167	(B)	2				
79	1	26	15781	N09 W67	171	600	2.5	20419	N08 W61	166	(AF)	2				
79	1	27	15781	N08 W81	172	400	1.5									

MCMATH REGION 15774 CMP DATE 21.9 RETURN OF REGION 15737 ROTATION 2

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15774	S13 E82	168	900	2.0		S14 E79				B	60	2	CSO
79	1	16	15774	S14 E68	169	1400	3.0		S14 E66				B	90	2	CSO
79	1	17	15774	S15 E53	168	1100	3.0		S13 E53				B	170	6	CHO
79	1	18	15774	S14 E41	169	1500	3.5	20409	S15 E40	170	BP	5	H	160	17	DSO
79	1	19	15774					20409	S14 E29	168	(B)	3				
79	1	20	15774					20409	S14 E15	169	(BP)	4				
79	1	22	15774	S15 W10	167	1600	3.0	20409	S15 W13	170	(BP)	3				
79	1	23	15774	S15 W23	167	1500	3.0	20409	S14 W27	171	(AP)	4				
79	1	25	15774					20409	S14 W54	171	(AP)	2				
79	1	26	15774	S15 W65	169	1200	2.0	20409	S14 W68	173	(AP)	3				
79	1	27	15774	S16 W79	170	700	2.0	20409	S14 W80	171	(AP)	2				

MCMATH REGION 15775 CMP DATE 22.8

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	16	15775	S18 E85	152	500	1.0									
79	1	17	15775	S18 E68	153	500	2.5									
79	1	18	15775	S18 E56	154	500	2.5	20411	S18 E53	157	AP	2	M	30	3	CRO
79	1	19	15775					20411	S18 E38	159	AP	2				
79	1	20	15775					20411	S17 E24	160	(AP)	2				
79	1	22	15775	S18 E03	154	400	2.0									
79	1	23	15775	S18 W11	155	400	2.0									
79	1	26	15775	S18 W53	157	400	1.5									

MCMATH REGION 15782 CMP DATE 22.8

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15782	N07 E03	154	300	2.5	20420	N06 E02	155	(AP)	2				
79	1	23	15782	N08 W10	154	200	1.5	20420	N07 W13	157	(AP)	2				
79	1	26	15782	N09 W52	156	400	2.0									
79	1	27	15782	N08 W66	157	400	2.0									

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MCMATH REGION 15784 CMP DATE 23.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15784	S29 E07	150	100	1.0									
79	1	23	15784	S29 W05	149	100	1.0									
79	1	25	15784					20425	S28 W33	150	(B)	2				
79	1	26	15784	S29 W47	151	300	3.5	20425	S28 W39	144	(AP)	2				
79	1	27	15784	S30 W60	151	300	2.0	20425	S28 W62	153	(AP)	2				

MCMATH REGION 15778 CMP DATE 23.7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	17	15778	S11 E80	141	1200	3.0		S09 E80				B	140	1	HSX
79	1	18	15778	S11 E68	142	2700	2.5	20410	S11 E63	147	AP	5	H	150	3	CSO
79	1	19	15778					20410	S11 E49	148	(AP)	4				
79	1	20	15778					20410	S12 E37	147	(BP)	4				
79	1		15778					20416	S13 E48	136	(AF)	2				
79	1	22	15778	S12 E15	142	2400	3.0	20410	S12 E12	145	(Y)	4				
79	1	23	15778	S12 E01	143	2100	3.0	20410	S11 E00	144	(B)	4				
79	1	25	15778					20410	S12 W27	144	(B)	3				
79	1	26	15778	S12 W38	142	1800	3.0	20410	S12 W40	145	(B)	3				
79	1	27	15778	S13 W52	143	2100	3.0	20410	S12 W58	149	(AP)	4				
79	1	28	15778					20410	S12 W72	150	AP	2				

MCMATH REGION 15779 CMP DATE 23.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	18	15779	S25 E70	140	300	2.0		S27 E66				M	10	1	AXX
79	1	20	15779					20415	S27 E41	143	(B)	3				
79	1	22	15779	S25 E17	140	700	2.5	20415	S26 E14	143	(B)	3				
79	1	23	15779	S25 E04	140	800	3.0	20415	S26 E02	142	(B)	3				
79	1	25	15779					20415	S25 W25	142	(B)	3				
79	1	26	15779	S25 W35	139	1000	3.5	20415	S25 W37	142	(Y)	3				
79	1	27	15779	S26 W49	140	1800	3.0	20415	S26 W47	138	(D)	3				
79	1	28	15779					20415	S27 W62	140	Y	4				
79	1	29	15779					20415	S26 W72	137	(D)	2				
79	1	30	15779	S26 W89	141	1800	3.0									

MCMATH REGION 15777 CMP DATE 24.5 RETURN OF REGION 15726 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	17	15777	N13 E85	136	800	2.0									
79	1	18	15777	N14 E77	133	3000	3.5		N11 E75				M	60	4	BXO
79	1	19	15777					20412	N12 E62	135	AP	2				
79	1	20	15777					20412	N13 E50	134	(B)	4				
79	1		15777					20417	N09 E53	131	(BP)	3				
79	1	22	15777	N14 E24	133	5100	3.5	20412	N13 E23	134	(BP)	4				
79	1		15777					20417	N09 E25	132	(B)	2				
79	1		15777					20421	N18 E23	134	(AP)	3				
79	1	23	15777	N15 E11	133	5400	3.0	20412	N12 E08	136	(BP)	4				
79	1		15777					20417	N10 E11	133	(B)	3				
79	1		15777					20421	N18 E08	136	AP	2				
79	1	25	15777					20412	N14 W19	136	(BP)	4				
79	1	26	15777	N15 W30	134	5200	3.0	20412	N14 W33	138	(BP)	4				
79	1		15777					20427	N09 W29	134	(B)	2				
79	1	27	15777	N15 W44	135	5300	3.0	20412	N15 W45	136	(Y)	4				
79	1		15777					20427	N09 W43	134	(B)	3				
79	1		15777					20428	N17 W42	133	(B)	3				
79	1	28	15777					20412	N15 W60	138	Y	4				
79	1		15777					20427	N09 W58	136	E	3				
79	1		15777					20428	N18 W55	133	B	2				
79	1	29	15777					20412	N13 W78	143	(AP)	3				
79	1		15777					20427	N09 W72	137	(BP)	2				
79	1		15777					20428	N17 W70	135	(B)	2				
79	1	30	15777	N14 W84	136	4000	2.5									

REGIONS OF SOLAR ACTIVITY

JANUARY 1979

MCMATH REGION 15787 CMP DATE 26.1 RETURN OF REGION 15751 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	20	15787				
79	1	22	15787	N20 E45	112	3700	3.5
79	1	23	15787	N22 E32	112	3400	3.0
79	1	25	15787				
79	1		15787				
79	1	26	15787	N20 W08	112	3200	3.5
79	1	27	15787	N20 W21	112	3000	3.5
79	1	28	15787				
79	1	29	15787				
79	1	30	15787	N20 W60	112	3700	3.5
79	1	31	15787	N20 W74	112	3400	3.0
79	2	01	15787	N21 W87		1300	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20418	N19 E70	114	(AP)	3				
20418	N19 E41	116	(BP)	4				
20418	N19 E30	114	(BP)	4				
20418	N20 E04	113	(BP)	4				
20426	N25 E35	82	(AP)	2				
20418	N21 W08	113	(B)	3				
20418	N20 W19	110	(B)	3				
20418	N20 W36	114	B	3				
20418	N20 W47	112	(B)	3				

MCMATH REGION 15785 CMP DATE 26.7 RETURN OF POSSIBLE PART OF REGION 15733 OR NEW ROTATIONS 1 OR 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15785	S14 E56	101	2800	3.5
79	1	23	15785	S14 E43	101	3000	3.0
79	1	25	15785				
79	1	26	15785	S14 W01	105	3200	3.0
79	1	27	15785	S14 W13	104	3000	3.0
79	1	28	15785				
79	1	29	15785				
79	1	30	15785	S15 W52	104	3000	3.5
79	1	31	15785	S15 W65	103	2700	3.0
79	2	01	15785	S15 W77		2300	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20422	S14 E55	102	(AP)	2				
20422	S14 E36	108	(Y)	3				
20422	S13 E09	108	(Y)	4				
20422	S13 W03	108	(B)	3				
20422	S14 W15	106	(BP)	4				
20422	S14 W29	107	BP	3				
20422	S14 W42	107	(BP)	2				

MCMATH REGION 15786 CMP DATE 27.7 (PROBABLY NEW)

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15786	S25 E68	89	3200	3.5
79	1	23	15786	S25 E54	90	3800	3.5
79	1	25	15786				
79	1	26	15786	S25 E12	92	4100	3.5
79	1	27	15786	S27 E00	91	3800	3.0
79	1	28	15786				
79	1	29	15786				
79	1	30	15786	S26 W38	90	3700	3.5
79	1	31	15786	S26 W50	88	3500	3.0
79	2	01	15786	S26 W63		2700	3.0
79	2	02	15786	S27 W76		2800	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20423	S25 E61	96	(BP)	4				
20423	S25 E47	97	(AP)	4				
20423	S25 E24	93	(AP)	5				
20423	S25 E11	94	(AP)	4				
20423	S26 E03	88	(BP)	4				
20423	S26 W13	91	BP	4				
20423	S26 W25	90	(BP)	3				
	S27 W62				B	138	2	C
	S25 W81				B	80	1	H

MCMATH REGION 15789 CMP DATE 28.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	23	15789	N30 W49	206	100	1.0
79	1	26	15789	N25 E22	95	300	2.0
79	1	27	15789	N25 E10	94	200	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15809 CMP DATE 28.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	02	15809	N14 W68		100	1.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15788 CMP DATE 29.0 RETURN OF PART OF REGION 15733 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15788	S21 E88	69	2800	2.0
79	1	23	15788	S23 E73	71	2900	2.0
79	1	25	15788				
79	1	26	15788	S23 E30	74	2700	2.5
79	1	27	15788	S23 E18	73	2800	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20424	S22 E78	79	(AP)	3				
20424	S22 E64	80	(AP)	3				
20424	S23 E38	79	(AP)	4				
20424	S23 E25	80	(AP)	4				
20424	S23 E12	79	(AP)	4				

CONTD

REGIONS OF SOLAR ACTIVITY

JANUARY 1979

MCMATH REGION 15788 (CONT) CMP DATE 29.0 RETURN OF REGION 15733 ROTATION 4

				CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	28	15788					20424	S23 E03	75	BP	4			
79	1	29	15788					20424	S24 W13	78	(BP)	4			
79	1	30	15788	S23 W22	74	2800	2.5								
79	1	31	15788	S23 W35	73	2600	2.5								
79	2	01	15788	S23 W47		2600	2.5		S24 W51				B	163	1 H
79	2	02	15788	S23 W61		2200	2.0		S23 W66				B	130	1 H
79	2	03	15788						S23 W84				B	50	1 H
79	2	04	15788	S23 W90		500	1.0								

MCMATH REGION 15791 CMP DATE 30.3 RETURN OF REGION 15755 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15791	N26 E49	55	400	1.5								
79	1	27	15791	N25 E35	56	400	1.5								
79	1	30	15791	N26 W04	56	400	1.0								
79	1	31	15791	N25 W19	57	300	1.0								
79	2	01	15791	N25 W32		300	1.0								
79	2	02	15791	N25 W45		400	1.0								

MCMATH REGION 15790 CMP DATE 30.4 RETURN OF REGION 15739 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15790	S35 E45	59	400	2.0								
79	1	27	15790	S34 E35	56	600	1.5								
79	1	30	15790	S34 W03	55	500	1.5								
79	1	31	15790	S34 W16	54	300	1.5								
79	2	01	15790	S34 W27		400	1.0								
79	2	02	15790	S34 W41		300	1.0								
79	2	04	15790	S34 W66		300	1.0								
79	2	05	15790	S34 W79		300	1.0								

MCMATH REGION 15792 CMP DATE 31.1 RETURN OF REGION 15741 ROTATION 2

				CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15792	S15 E60	44	1500	2.5								
79	1	27	15792	S15 E46	45	1200	2.5								
79	1	28	15792					20429	S18 E42	36	AP	3			
79	1	30	15792	S15 E06	46	800	2.0								
79	1	31	15792	S15 W08	46	800	2.0								
79	2	01	15792	S15 W19		900	1.5								
79	2	02	15792	S15 W32		700	1.0								
79	2	04	15792	S15 W58		600	1.0								
79	2	05	15792	S15 W71		500	1.0								

MCMATH REGION 15797 CMP DATE 31.9

				CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	30	15797	N10 E19	33	100	1.0								
79	1	31	15797	N10 E03	35	100	1.0								
79	2	01	15797	N09 W09		100	1.0								
79	2	02	15797	N09 W22		100	1.0								
79	2	04	15797	N09 W49		200	1.0								
79	2	05	15797	N10 W62		200	1.5								

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MCMATH-HULBERT OBSERVATORY ON JANUARY 1,7,13, 19,20,21,24,25,28 AND 29, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON JANUARY 3,5,7,14,15,16,17,21,24,30 AND 31, 1979

DAILY CALCIUM PLAGE INDEX

JANUARY 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	1	1	*	79	1	11	65.0	79	1	21	*
79	1	2	59.8	79	1	12	55.7	79	1	22	66.1
79	1	3	63.9	79	1	13	*	79	1	23	65.2
79	1	4	59.0	79	1	14	50.3	79	1	24	*
79	1	5	50.5	79	1	15	39.9	79	1	25	*
79	1	6	56.5	79	1	16	42.4	79	1	26	67.1
79	1	7	*	79	1	17	33.8	79	1	27	56.4
79	1	8	55.6	79	1	18	36.9	79	1	28	*
79	1	9	55.0	79	1	19	*	79	1	29	*
79	1	10	55.7	79	1	20	*	79	1	30	50.8
								79	1	31	45.9

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0852	0909	0858	1-	3				1		1		0857E	15746
01	1450	1530	1508	1-	1				1		1		1446	15741
02	1030	1158	1106	1-	1			1					*	
02	1312	1323		1-	1			1					*	
02	1826	1857	1833	1-	5	1			1		1		1825	15750
02	1946	2031	1954U	1-	1				1				1945	15741
03	1139	1202	1144	1-	5			5	4		3		1135	15740
03	1256	1324	1259	1-	1			1					*	
03	1600	1715	1620	1-	5				2	1	1		1600	15750
03	1723	1752	1728	1-	1					1			1720	15750
03	1808	1832	1818	1-	1				1	1			1807	15741
03	2145	2222	2151	1-	5				3	1	1		2149E	15741
05	0107	0135	0114	1-	1				1				0114E	15746
05	1106	1150	1119	1+	5			6	4		3		NF	
05	1158	1207D	1207	1-	1				1		1		*	
05	1230	1300	1235	1-	5		1	1	1		1		*	
05	1515	1700	1534	1-	3				1	1	2		NF	
05	1645	1716	1650	1-	1					1			*	
05	1830	1930	1835	1-	5	1			1	3			1826	15740
05	2311	2346	2322	1-	1				1				2309	15745
08	0224	0409	0248	2+	3	1			1				0229	15754
08	0820	0845	0845	1-	1			1					*	
08	0936	1017		1-	1			1					*	
08	1408	1420	1412	1-	5	1		1	2		1		1407	15749
08	1443	1600	1455	1-	5	1			1	1	1		1442	15745
08	2234	2256	2241	1-	3				2				2232	15744
09	0849	1018	0905	1-	3			3					0844	15744
09	1909	1942	1917	1-	5	1			1		1		1906	15749
10	1110	1125	1115	1-	5			3	3		2		NF	
10	1620	1700	1631	1-	5				1		3		1616	15749
10	1853	1937	1902	1-	1					1			1851	15749
11	0742	0916	0749	3	5			2	1		1		0743	15746
11	1117	1122	1120	1	5	1		5	3		2		*	
11	1236	1400	1258	2	5	2		5	4		2		*	
11	1702	1717	1704	1-	3					1	1		1658	15745
11	1737	1805	1740	1-	3						2		1738	15749
12	0027	0232	0035	1+	5	1			2				0028E	15748
12	1105	1200	1117	1-	5	1		6	4		2		1102	15747
12	1330	1430	1340	1-	1				1				1328	15754
12	1622	1648	1627	1-	5	1			1	1	1		1628	15754
12	1845	1859	1847	1-	1				1	1			1841	15748
12	2155	2334	2225	1-	3				1	1			2153	15748
12	2215	2245	2228	1-	1				1				2214	15754
13	1151	1235	1159	1-	5	1		8	4		3		1144	15754
13	1235	1256D	1256	1-	5			4	1		1		1233	15748
13	1327	1340D	1340	1-	5	1		7	2		3		1322	15756
13	1343	1420	1348	1-	5			3	2		1		1349E	15770
13	1538	1630	1551	1-	1				1		1		1534	15754
13	1818	1858	1824	1-	5	1			2	1	3		1816	15748
13	1932	2114	1938	2-	5	2	1		2	1	3		1930	15754
13	2236	2356	2243	1	5				1	1	1		2236	15748
14	1155	1230	1158	1+	5	2		9	4		3		1203E	15754
14	1257	1430	1310	1 +	5	1		8	4		3		1255	15748
14	1442	1545	1503	1-	5			2	1		1		1444	15754
14	1634	1730	1645	1-	3				1	1	1		1633	15748
14	1703	1730	1707	1-	1					1			1701	15754
14	2306	0000	2314	1-	5	1			2				*	
15	1042	1230	1116	2	5			2	1		1		1039	15754
15	1101	1130	1105	2	3	2		7	2		2		1058	15748
15	1338	1410	1341	2	5	2		7	4		3		1332	15763
15	2008	2125	2015	1-	5	1	1		3	1	3		2008	15754
15	2228	2342	2244	1-	3				2				*	
16	0737	0920D	0749	1-	5			4	1		1		0738	15754
16	0848	0920	0854	1-	1						1		0848	15762
16	0920E	1033D	0927	1-	3			3	2				0915	15762
16	1038	1055	1039	3	5	3		8	2		2		1040E	15762
16	1416	1500	1430	1-	3			1	1		1		1410	15754
16	1634	1730	1645	1-	1						1		1633	15773
16	1759	1821	1804	1-	1					1			1803E	15762
16	1856	1940	1901	1-	5	1			1	1	1		1855	15754
17	1613	1730	1623	1-	1				1		1		1617	15772

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
18	0856	1037	0904	1-	5			5	2		1		0850	15762
18	0914	0925	0916	1-	1						1		0915	15754
18	1213	1253	1229	1-	1			1					1215	15754
18	1355	1408D	1408	1-	5			3	2		2		NF	
18	1418	1432D	1432	1-	5			1	2		1		1416	15754
18	1439	1510	1453	1-	5			2	2		1		1446E	15754
18	1528	1620	1535	1-	3	1			1		1		1525	15774
18	1814	1829D	1818	1-	1					1			1812	15774
18	1829	1843D	1834	1-	1					1			1831	15774
18	1846	1913	1854	1-	1				1				1851	15767
18	2001	2013	2006	1-	1					1			2001	15754
19	0240	0310	0246	1-	1				1				0239	15777
19	0424E	0541D	0442	1-	3	1			1				*	
19	1231	1300	1237	1	5			2	2		1		NF	
19	1340	1400	1345	1-	5	1		4	3		1		1338	15762
19	1958	2058D	2021	1-	1				1	1			2001	15777
19	2233	0008	2300	1-	3				2	1			2228	15767
20	1105	1205	1121	1-	5	1		4	3		3		NF	
20	1643	1735	1652	1-	1				1		1		1644E	15785
21	0836	1036	0939	1-	3			2	1				*	
21	0930	1000	0936	1-	5	1		4	3		3		*	
21	1048	1110	1053	1-	5			4	3		2		*	
21	1159	1230	1208	1-	3				1		2		*	
21	1313	1430	1327	2	5	3	1	9	5		3		1312	15762
21	1511	1620	1520	1-	5			1	2		1		1511	15774
22	0524	0606D	0531	1-	1				1				0519	15761
22	0606E	0708	0625	1-	1				1				0611	15787
22	1001	1051	1014	1-	3			1	1		1		*	
22	1004	1251	1111U	1-	3			2					*	
22	1459	1615	1523	1-	1				1		1		1454E	15785
22	1823	1900	1039	1-	3				2	1	1		1823	15788
23	0635	0707	0643	1-	1				1				0635E	15772
23	1820	1838	1822	1-	1					1			1820	15786
23	2007	2023	2010	1-	3	1			1	1			2006	15777
24	0141	0218	0152	1-	1				1				0137	15777
24	0416	0533	0428	1-	1				1				0416	15786
24	0816	0914D	0826	1-	3				1		1		0818E	15786
24	0914E	0952	0922	1-	1				1				0910	15778
24	1223	1345	1239	1	5	2		8	3		2		1225	15786
24	1911	1935	1920	1-	1	1							1912	15785
24	2256	0000	2313	1-	3				2				*	
25	0321	0526	0331	3	3	1			1				0318	15785
25	1418	1600	1429	1	5	2		7	3	1	2		1417	15786
26	0856	0937	0908	1-	1				1				0853	15779
26	1143	1230	1152	1-	5				2		2		1143	15785
27	0829	0919	0838	1-	3				1		1		0833E	15787
27	1037	1115	1045	1-	5			1	3		2		NF	
27	1850	1917	1854	1-	3	1			1	1			1849	15777
28	0916	0951	0920	1-	1				1				0915	15777
28	1309	1350	1313	1	5	3	1	5	5		3		1304	15777
28	1422	1437	1427	1-	5	1		3	2		2		1411	15777
28	1733	1804D	1739	1-	1					1			1733E	15785
28	1804E	1843	1812	1-	3	1			1	1			1804	15785
28	1903	1947	1915	1-	1				1	1			1905	15779
29	1523	1537D	1537	1	1				1		1		1522	15802
29	1605	1645	1613	1-	1				1		1		1602	15800
30	0018	0056	0026	1-	1				1				0019	15786
30	1110	1145	1118	1-	5		1	4	4		2		1113E	15786
30	1432	1454	1447	1-	1	1							1425	15802
31	0736	0839		1-	1			1					0735	15804
31	0932	1130	0940	1-	1						1		0929	15800
31	1446	1500	1451	1-	5			1	2	1	1		1444	15786
31	1617	1715	1626	1-	3				1	1	1		1614	15786

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1979

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION	DATE	TIME (UT) and STATION
02	0000-2400 TN	20	0000-2400 TN
07	1830-2230 UM (13 kHz)	22-24	0000-2400 TN
10	2043-2100 TM	23	1000-1215 UM (16 kHz)
11	1200-1400 UM (10 kHz and 13 kHz)	24	1235-1900 UM (16 kHz)
12	0945-1030 UM (10 kHz and 13 kHz)	30	0812-1017 TM, 1000-1400 UM (16 kHz)
16	1000-1400 UM (16 kHz)		

STATIONS REPORTING FOR JANUARY 1979

CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HUANCAYO (HU) (SWF)
HUMAIN (HM) (SEA)
INUBO (IN) (SPA)
JULIUSRUH (JH) (SWF)
KANDILLI (KD) (SEA)
KUHLUNGSBORN (KU) (SES, SPA)
MC MATH (MC) (SWF, SCNA)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SEA)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UCCLE (UC) (SEA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

SIDs BY McMATH REGION

JANUARY 1979

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
15740			1		1																										
15741	1	1	2																												
15744								1	1	1																					
15745					1			1			1																				
15746	1				1						1																				
15747												1																			
15748												3	3	2	1																
15749								1	1	3	1																				
15750		1	2																												
15754								1				3	3	3	2	3		5													
15756													1																		
15761																						1									
15762																4		1	2		1										
15763															1																
15767																		1													
15770													1																		
15772																	1						1								
15773																1															
15774																		3			1										
15777																			2				1	1			1	3			
15778																								1							
15779																										1		1			
15785																				1		1		1	1	1		2			
15786																							1	3	1				2	2	
15787																						1					1				
15788																						1									
15800																													1		1
15802																													1	1	
15804																															1
X-RAY																															
UNKNOWN					2					1								1	1	1							1				
NO FP		5	1		3			2			2			1	1				1		4	2		1							

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01	0000	0734	CULG				0000	0500					IIIN,W
			CULG				0029	0032.5	3	0029.5	0032.5	3	IIIGG,V
			CULG				0221	0224		0221.5	0222.5		IIIG,W
			CULG	0226		1							FAST DRIFT
			CULG				0249	0251.5	2	0249.5	0250	2	POSSII
			CULG				0249	0251.5	2	0249.5	0250	2	IIIGG,RS
			CULG				0252.5	0253.5	1				IIIG
			CULG	0316.5	0317								IIIG,W
			CULG	0323	0325	1	0321.5	0329	2	0321.5	0329	1	IIIGG
			CULG				0325	0325.5	3	0325.5	0326	2	IIIG
			CULG				0348.5	0349.5	1				IIIG
			CULG				0407.5	0408	1				IIIG
			CULG	0419.5	0421	1	0419	0421.5	2	0419.5	0421	2	IIIGG
			CULG	0423	0423.5	1	0423	0423.5	1				IIIG
			CULG				0437	0438.5	1				IIIG,RS
			CULG				0440.5	0441.5					IIIG,W
			CULG				0449	0450	1				IIIG
			CULG				0500	0734					IIIS,W
			CULG				0534.5	0535	2				IIIB
			CULG				0623	0648					IS,W
			CULG				0648	0734	1				IS
			CULG				0652.5	0653	2				IIIG
	0722	1044	DURN				0723	0733	2				IIIGG
	1148	1520	DURN				1206.1	1207.7	3				IIIGG
	0758	1500	WEIS				1212.5	1219.3	2				IIIGG
	1218	2115	SGMR										
			WEIS				1233.7	1234.2	1				IIIG
			WEIS				1317.7	1318.7	1				IIIG
			DURN				1328.5	1328.5	2				III
			WEIS				1338.5	1338.6	2				IIIB
	2035	2400	CULG				2035	2400					IIIS,W
			CULG				2038		1				IIIB
			CULG				2039		2	2039		1	IIIB
			CULG				2139		3	2139		2	IIIB
	2219	2400	MANI										
02	0000	0909	MANI										
	0000	0735	CULG				0000	0216					IIIN,W
			CULG				0002.5	0006.5	1				RS,DP
			CULG				0004.5	0007	3	0005	0007.5	3	IIIG
			CULG	0005.5	0006	1	0002.5	0008	1	0003	0007.5	2	IIIGG
			CULG	0015.5	0016	1	0015.5	0016	1				IIIG
			CULG	0020	0020.5	1	0020	0020.5	2				IIIG
			CULG	0233	0735		0428	0604					IN,W
			CULG	0233	0233.5	1	0233	0234	1				IIIG
			CULG				0326						IIIB,W
			CULG				0447	0447.5	1				IIIG
			CULG	0553.5	0556.5	2	0553.5	0556.5	2				IIIGG
			CULG				0604	0735	1				IS
			CULG	0639	0639.5	2	0638.5	0640.5	2				IIIGG,V
			CULG	0642	0645	2	0642.5	0644.5	2				IIIG
			CULG				0721	0721.5					IIIB,W
	0724	1520	DURN				0724 E	1520 D	1				I,DC
			CULG				0728						IIIB,W
			CULG				0730.5	0731.5	2				IIIG
			WEIS				0802.5	1438.7	1				IN
	0758	0837	WEIS				0804.7	0805.3	2				IIIG
			DURN				0839.7	0840.0	3				IIIG
			DURN				0848.2	0848.2	1				III
	0842	1500	WEIS				0849.7	0805.1	2				IIIG
			WEIS				0858.1	0858.2	1				IIIG
			WEIS				0920.5	0921.5	2				IIIG
			WEIS				1123.5	1123.9	1				IIIG
			DURN				1129.6	1129.7	3				III
			WEIS				1139.6	1139.8	2				IIIG
			DURN				1151.5	1152.6	1				IIIG
			DURN	1158.0	1158.7	3							IIIGG
			WEIS				1201.3	1202.6	1				IIIG
			WEIS				1224.8	1225.3	1				IIIG
			DURN				1256.1	1258.9	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			WEIS				1306.1	1308.8	3				IIIGG
			WEIS				1318.1	1318.3	1				IIIG
			DURN				1352.7	1352.9	1				IIIG
			DURN				1357.0	1358.7	3				IIIGG
			WEIS				1402.6	1402.9	1				IIIG
			WEIS				1406.9	1407.7	3				IIIGG
			DURN				1411.5	1421.5	3				IIIG,N
			WEIS				1420.6	1422.8	2				IIIGG
			WEIS				1425.6	1431.8	2				IIIGG
			DURN	1440.3	1440.5	3							IIIG
			DURN				1444.9	1444.9	2				III
			WEIS				1450.4	1450.5	2				IIIG
			WEIS				1454.9	1455.2	1				IIIG
			DURN				1514.9	1516.6	3				IIIG
	1218	2116	SGMR				1748.8	1749.1	1				IIIG
			SGMR				2021.0	2021.2	1				III
	2036	2400	CULG				2036	2138					IS,W
			CULG				2038	2400					IIIS,W
			CULG	2049	2051	3							FAST DRIFT
			CULG	2100.5	2101	1							FAST DRIFT
			CULG	2111	2111.5	3	2111	2112	3				IIIG
			CULG	2115.5	2116	1	2115.5	2116	3	2115.5	2116	2	IIIG
			CULG				2118	2119	1	2118	2118.5	1	IIIG
			CULG	2131.5	2132	2	2131.5	2132	2				IIIG
			CULG				2137.5		2	2137.5		1	IIIB
			CULG				2138	2224	1				IS
			CULG	2156.5	2203	2	2152	2203	2	2153	2203	2	IIIGG
			CULG				2200.5	2201	3				IIIB
			CULG				2206	2207	1	2206	2207	1	IIIG
			CULG	2217	2218	1	2217	2218	1				IIIG
			CULG				2224	2400					IS,W
			CULG	2239.5	2247.5	2	2239.5	2251	3	2241	2251	3	IIIGG,V
			CULG	2247	2329	1							IN
			CULG				2252.5	2305.5	3				II
			CULG							2255.5	2256	1	IIIG
			CULG				2323	2323.5	1				IIIG
	2228	2400	MANI							2331.6	2332.8	1	IIIG
			CULG	2331	2334	3	2331	2334	3	2330.5	2334.5	3	IIIGG,V
			CULG				2343.5	2345	2	2343.5	2345	1	IIIG
			CULG				2354	2355	2	2354.5	2355	1	IIIG
03			CULG	0000	0132		0000	0028					IS,W
	0000	0736	CULG				0000	0011					IIIS,W
			CULG				0002.5	0003	2	0003	0003.5	2	IIIG
			CULG	0006	0007.5	2	0006	0005	2	0006	0007.5	2	IIIGG,U
			CULG				0011	0736					IIIN,W
			CULG	0035.5	0039.5	2	0036.5	0039.5	1				IIIG
			CULG	0046	0047	1	0046		2				IIIG,U
			CULG				0050		2				IIIB
			CULG				0122.5	0123	1	0123	0123.5	2	IIIG
			CULG				0129	0133	1	0129	0133	2	IIIGG
			CULG	0135.5		1							FAST DRIFT
			CULG	0214	0526								IN,W
			CULG				0215.5	0216	2	0215.5	0216	2	IIIG
			CULG	0218	0219	1	0217.5	0221	2	0217.5	0221	2	IIIGG
			CULG	0246.5	0250.5	2							UNCLF
			CULG	0246.5	0250.5	2	0246.5	0249	2				IIIGG
			CULG				0256	0302	1				IS
			CULG				0302	0736					IN,W
			CULG	0323.5	0324	3	0323.5	0324	2				IIIG
			CULG	0327	0327.5	2							FAST DRIFT
			CULG				0341	0341.5	1	0341	0342	2	IIIG
			CULG				0400.5	0404	1	0401	0404	1	IIIGG
			CULG	0427		1							FAST DRIFT
			CULG				0433	0437	1				IIIG
			CULG	0442		2							FAST DRIFT
			CULG	0448	0449	1							FAST DRIFT
	0000	0905	MANI							0603.0	0605.0	1	III
			CULG	0603	0611	2	0602.5	0611	3	0602.5	0608	3	IIIGG,V
			CULG				0607.5	0636.5	3				II

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			CULG				0615	0615.5	2				IIIG
			CULG	0619.5	0632	1							N,FASTDRIF
			CULG	0702	0702.5								W,FASTDRIF
	0723	1336	DURN				0724.7	0725.4	2				IIIG
			CULG	0734.5	0736	1							FAST DRIFT
			DURN	0914.2	0914.5	3							IIIG
			DURN				0922.1	0923.1					IIIG
	0756	1457	WEIS				0924.2	0924.5	1				IIIG
			WEIS				0932.1	0933.1	2				IIIG
			WEIS	1025.7	1025.8	2							IIIB
			DURN	1027.3	1027.3	2							IIIG
			DURN	1030.7	1031.1	3	1030.7	1031.1	3				IIIGG
			WEIS	1033.6	1033.7	1							IIIB
			WEIS	1037.2	1037.4	2							IIIG
			WEIS				1041.7	1042.3	3				IIIG,RS
			DURN				1049.9	1050.4	3				IIIG
			WEIS				1100.3	1101.4	2				IIIG
			WEIS	1110.4	1114.7	1							IIIGG
			DURN	1125.1	1132.2	3	1124.7	1132.2	3				IIIGG,RS
			WEIS				1126.3	1128.2	1				IIIG
			WEIS				1134.5	1135.7	2				IIIG
			WEIS				1139.0	1145.8	3				IIIGG,RS
			DURN	1206.7	1206.7	2							IIIG
			DURN	1227.0	1227.0	1	1227.0	1227.3	3				IIIG
			WEIS				1230.3	1231.1	2				IIIG
			DURN				1230.6	1230.8	1				IIIG
			WEIS	1234.7	1234.8	1							IIIB
			WEIS				1236.9	1237.8	2				IIIG
			WEIS				1240.6	1240.8	2				IIIG
			DURN				1245.9	1246.2	3				IIIG
			WEIS				1255.9	1256.3	2				IIIG
			WEIS				1304.6	1305.6	2				IIIG
	1218	2117	SGMR				1305.0	1305.7	1				IIIG
			WEIS	1407.7	1407.9	1							IIIG
			WEIS				1410.7	1413.5	2				IIIG
			SGMR				1410.9	1411.9	2				IIIS
			WEIS				1414.8	1416.3	2				IIIG
	1432	1520	DURN										
			SGMR				1625.5	1626.0	3				IIIG
			SGMR				1900.2	1902.8	2				IIIG
	2037	2400	CULG				2037	2114	1				IIIS
			CULG	2044.5	2045.5	1							FAST DRIFT
			CULG							2049	2400	1	IIIN
			CULG	2052.5	2054	1							FAST DRIFT
			CULG				2114	2400					IIIS,W
			CULG				2140.5	2141	3	2140.5	2141	2	IIIG
			CULG				2143	2143.5	1	2143.5	2144	1	IIIG
			CULG	2145	2146.5	2	2144	2147	3	2145.5	2147.5	3	IIIG,V,U
			CULG							2148	2210	1	S.W.F.
			CULG	2148	2148.5	2	2148	2153.5	2				II
			CULG	2149	2154	1							IIIG
			CULG	2211	2211.5	2							IIIG
			CULG	2219	2220.5	1	2219.5	2220.5	2	2220	2221	2	IIIG
	2220	2400	MANI										
			CULG	2223	2225	2	2223	2226	2	2223	2224	2	IIIGG
			CULG				2229	2400					IS,W
			CULG				2341.5	2342	2				IIIG
04	0000	0736	CULG				0000	0310					IIIS,W
	0000	0915	MANI										
			CULG				0039.5		1				IIIB
			CULG							0039	0310		IIIN,W
			CULG				0041	0041.5	2	0041.5	0042	1	IIIG
			CULG				0047	0047.5	2				IIIG
			CULG				0134		1				IIIB
			CULG				0137		1				IIIB
			CULG	0212	0212.5	1							IIIG
			CULG				0310	0736	1	0310	0510	1	IIIS
			CULG				0348.5	0349	2	0348.5	0349	2	IIIB
			CULG	0512.5	0513.5	2	0512.5	0513.5	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
04			CULG	0547.5	0548								W,FASTDRIF
			CULG	0554	0555	1	0554	0555	1				IIIG
			CULG	0604.5	0606	2	0604.5	0606	2				IIIG
			CULG	0652	0654	2							IIIGG
	0723	1520	DURN										
	0755	1440	WEIS				0806.0	1454	1				IIIN
	1444	1458	WEIS				1114.5	1118.3	2				IIIGG
	1218	2118	SGMR										
			WEIS				1323.6	1324.5	2				IIIG
	2032	2400	CULG				2032	2400	1				IIIN
			CULG							2032	2400	1	IIIS
			CULG	2042	2400		2059	2400					IN,W
			CULG	2104	2105	2							IIIG
			CULG				2128	2129	2	2128.5	2129	2	IIIG
			CULG	2136.5	2138	2	2136.5	2138	2	2136.5	2138	2	IIIGG
			CULG				2145	2145.5	2				IIIB
	2226	2400	MANI										
			CULG				2258	2315	1				IS
			CULG	2306.5	2307.5								IIIG,W
05			CULG							0000	0737	1	IIIN
			CULG				0000	0737	1				IIIS
	0000	0737	CULG				0000	0643					IS,W
			CULG	0002	0002.5	2	0002	0002.5	2				IIIG
			CULG	0014.5	0016.5	1							IIIG
			CULG	0017.5	0018	2							IIIG
			CULG	0019	0023								IIIG,W
			CULG				0022.5	0054.5	3	0027.5	0038	3	II
	0000	0918	MANI							0028.7	0030.4	1	IIIG
			CULG	0038	0038.5	1							IIIG
			CULG	0108	0311								IS,W
			CULG	0343	0346	1	0341.5	0348	2	0344	0348	2	IIIGG
			CULG	0501.5	0502	1							IIIG
			CULG	0511	0513.5	2	0511.5	0513	3	0512	0513	3	IIIGG,V
			MANI							0512.3-	0512.9	1	III
			CULG	0517	0521	1							IIIG
	0722	1243	DURN										
	0756	1500	WEIS				0852.0	1456.0	1				IIIN
			WEIS				1140.0	1456.0	1				IN
	1218	2119	SGMR										
	1310	1520	DURN										
			CULG				2037	2400	1	2056	2400	1	IIIS
			CULG	2049	2049.5	1							IIIG
			CULG				2117		2	2117		1	IIIB
			CULG				2144	2202					IS,W
	2037	2400	CULG	2213	2301	1	2037	2144	1				IS
	2222	2400	MANI										
			CULG	2301	2400								IN,W
			CULG	2311.5	2312	2							IIIG
06	0000	0736	CULG							0000	0103	1	IIIS
			CULG				0000	0736					IIIS,W
	0000	0915	MANI										
			CULG	0010.5	0101	1							IIIG
			CULG				0020	0030	2				II
			CULG	0027		1	0027		2				IIIB
			CULG	0040.5	0054								POSSIV,W
			CULG	0055	0055.5	2	0055	0055.5	2				IIIG
			CULG	0105.5	0106	3	0105.5	0106	2				IIIG
			CULG	0145.5	0525.5	1							IIIG,N
			CULG	0212	0213.5	2							IIIG
			CULG				0216		1	0216		2	IIIB
	0722	1520	DURN				0722 E	0800	1				I
	1055	1500	WEIS				1229	1415	1				IIIN
	1218	2120	SGMR				1636.3	1647.8	2				IIIG
			CULG	2039	2141								IN,W
			CULG				2039	2317	1				IS
	2039	2400	CULG				2039	2049	1				IIIS
			CULG				2049	2400					IIIS,W
			CULG	2141	2249								IS,W

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JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
06			CULG										
	2231	2400	MANI							2148	2148.5	1	IIIB
07	0000	0253	CULG				0000	0253					IIIS,W
			CULG	0037	0253								IS,W
	0000	0911	MANI							0229.0	0229.6	1	III
			CULG				0229	0230	3	0229	0230	3	IIIG
			CULG	0316	0548		0514	0738					IS,W
	0316	0738	CULG				0316	0738					IIIS,W
	0722	1112	DURN										
	0754	1504	WEIS				1442.3	1443.4	2				IIIG
	1208	1520	DURN				1443.2	1443.8	3				IIIG
	1218	2121	SGMR				1443.6	1444.0	1				IIIG
	2038	2400	CULG				2038	2115					IIIS,W
			CULG				2043.5	2044.5	2				IIIG
	2216	2400	MANI										
			CULG				2338	2400					IIIN,W
			CULG				2358	2400					IS,W
08			CULG				0000	0738					IIIN,W
	0000	0913	MANI										
	0000	0738	CULG	0028	0738		0000	0035					IS,W
			CULG				0035	0738	1				IS
			CULG	0229	0244	2	0233	0304	2				IV
			CULG				0230.5	0254	3	0243	0252.5	2	II
			CULG							0235	0309	1	S.W.F.
	0754	0930	WEIS				0806.0	1327.0	1				IN
	1218	2122	SGMR										
	0934	1329	WEIS				1319.2	1319.4	1				IIIG
	1358	1500	WEIS										
	2039	2400	CULG	2039	2400		2039	2122					IS,W
			CULG				2053	2136					IIIN,W
			CULG				213€	2400					IIIS,W
	2226	2400	MANI										
			CULG	2312.5	2313	1	2312.5	2313	1				IIIG
			CULG				2316		1				IIIB
			CULG				2328.5	2329					IIIB,W
			CULG				2356	2357	2				IIIG
09			CULG	0000	0738		0255	0738					IS,W
	0000	0738	CULG				0000	0406					IIIN,W
			CULG				0017	0017.5		0017	0017.5		IIIG,W
			CULG				0018.5	0019	1	0018.5	0019	1	IIIB
			CULG				0021	0022	1	0021.5	0022	1	IIIG
			CULG	0046.5	0047	2	0046.5	0047	3	0046.5	0047	3	IIIG
			CULG				0048	0049	2				IIIG
			CULG				0123		1				IIIB
			CULG				0251		1	0251		1	IIIB
			CULG				0316.5	0317.5	2	0317	0317.5	1	IIIG
			CULG				0336	0337.5	2	0336.5	0337	2	IIIG
			CULG				0406	0738					IIIS,W
			CULG	0617.5	0618	1	0614	0622	3	0616	0618.5	3	IIIGG
	0000	0910	MANI							0617.5	0617.9	1	III
			CULG				0632.5		2				IIIB
			CULG				0729		1				IIIB
			CULG				0735.5	0736	3				IIIG
	0756	1502	WEIS				0803.7	1500	2				IIIN
	0935	1530	DURN				0935 E	1530 D	1				I,DC
			WEIS				1212.3	1212.4	2				IIIN,U
			WEIS				1217.7	1218.3	2				IIIG
	1218	2123	SGMR										
			WEIS				1323.5	1323.8	2				IIIG
	2040	2400	CULG				2040	2400					IIIN,W
			CULG	2056	2400		2040	2400					IS,W
	2230	2400	MANI										
			CULG	2233.5	2235	1							IIIG
			CULG	2239	2241.5	1							IIIG
10			CULG	0000	0739								IS,W
	0000	0739	CULG				0000	0739	1				IS,DC

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JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10	0000	0918	MANI										
			CULG				0002.5	0003.5	1				IIIG
			CULG				0016		1				IIIG
			CULG				0053	0739					IIIN,W
			CULG				0115.5	0116	1				IIIB
	0733	1540	DURN				0733 E	1540					I,DC
	0752	1509	WEIS				0757.0	1458.0	2				I I
			WEIS				0929.3	0929.5	2				IIIG
			WEIS				1012.5	1012.7	2				IIIG
	1217	2124	SGMR										
			WEIS				1348.3	1348.5	1				IIIB
			CULG				2040	2400	2				IS,DC
	2040	2400	CULG				2040	2255					IIIN,W
			CULG	2040	2400	1							IS
	2218	2400	MANI										
			CULG				2255	2400					IIIS,W
			CULG	2314	2315	1							IIIG
11	0000	0739	CULG	0000	0739	1	0000	0739	1				IS,DC
			CULG				0000	0739					IIIN,W
			CULG				0056.5	0101.5	2	0057	0101	2	IIIGG,V,U
	0000	0923	MANI							0057.2	0057.6	1	III
			CULG				0102.5	0112	2				II, H
			CULG	0648	0649	1							FAST DRIFT
	0733	1533	DURN				0733 E	1533 D	3				I,DC
			DURN	0742.7	0745.3	3							IIIGG
	1234	1509	WEIS				0810.0	1453.0	3				IDC
	0806	1225	WEIS				0815.2	0815.3	2				IIIB
			DURN	1125.4	1125.7	2							IIIG
			WEIS				1430.7	1430.8	2				I IIB
	1217	2125	SGMR				1716.4	1716.9	1				2II
			CULG				2040	2400					IIIS,W
	2040	2400	CULG	2040	2400	2	2040	2331	1				IS
	2223	2400	MANI										
			CULG				2230.5	2232.5	2	2231	2232	1	IIIG
12	0000	0740	CULG	0000	0740	1	0000	0740	1				IS
			CULG				0000	0740					IIIS,W
	0000	0919	MANI										
			CULG							0028	0043	1	S.W.F.
			CULG				0104	0237	2				IS,DC
			CULG				0450.5	0451	1	0450.5	0451	2	IIIB,U
			CULG				0716.5		1				IIIB
	0733	1535	DURN				0733 E	1535 D	3				I,DC
	0752	1510	WEIS				0756.0	1510.0	3				I I
			DURN	1034.2	1035.3	2							IIIGG
			DURN	1059.7	1059.8	3							IIIG
	1217	2127	SGMR										
			DURN	1227.6	1229.4	3							IIIGG
			DURN	1328.8	1331.1	3							IIIGG
			DURN	1526.1	1527.7	3	1526.1	1527.7	3				IIIGG
	2040	2400	CULG	2040	2224	1							IS
			CULG				2040	2238					IIIS,W
			CULG				2050		1				IIIB
			CULG				2121	2122	1				IIIG
			CULG	2126	2126.5	1	2126	2126.5	1				IIIG
			CULG	2133.5		2	2133.5		1				IIIB
			CULG	2134		1							IIIB
			CULG	2135.5		1	2135	2137	2				IIIGG
			CULG	2136	2137								IIIG,W
			CULG				2144	2144.5	1				IIIG
			CULG	2224	2400	2							IS
	2227	2400	MANI										
			CULG				2238	2341					IIIN,W
			CULG				2239		2				IIIB
			CULG				2244	2245	1				IIIG
13	0000	0740	CULG	0000	0249	1							IS
	0000	0915	MANI										
			CULG				0048	0505					IIIN,W

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JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			CULG				0214	0323					IS,W
			CULG				0232		1				IIIB,U
			CULG	0249	0740	2							IS
			CULG				0355.5	0359.5	3	0356	0357	1	IIIGG
			CULG				0402		1				IIIB
			CULG				0419	0623	1				IS
			CULG				0505	0740					IIIS,W
			CULG				0543		1				IIIB
			CULG				0623	0740	2				IS,DC
			CULG				0658	0658.5	1				IIIG
			CULG				0703	0703.5	1				IIIG
	0733	1539	DURN				0733 E	1539 D	3				I,DC
	0751	1511	WEIS				0758.0	1509.0	2				I ?
			WEIS				0759.7	0801.3	1				IIIG
			WEIS				0803.5	0803.6	1				I IIB
			WEIS				0810.0	0810.4	1				IIIG
			WEIS				0830.7	0832.4	2				IIIG
			WEIS				0838.2	0838.3	1				IIIB
			WEIS				0913.9	0914.1	2				IIIB
			WEIS				0956.4	0957.3	1				I IIG
			WEIS				1001.7	1002.5	3				IIIG
			WEIS				1012.9	1013.7	1				IIIG
			WEIS				1022.4	1023.3	3				IIIG
			WEIS				1147.6	1148.4	2				IIIG
			DURN	1149.9	1151.0	3							IIIGG
			WEIS	1150.7	1150.9	1							IIIG
			DURN	1152.1	1152.1	2							I II
			DURN	1154.4	1156.2	3	1154.5	1156.3	3				IIIGG
			WEIS	1154.4	1155.3	3							IIIG
			WEIS				1158.2	1205.0	3				II, HARM
			WEIS				1203.5	1204.1	1				IIIG
	1216	2128	SGMR										
			WEIS				1406.4	1406.6	1				I IIG
			WEIS				1448.8	1449.0	1				IIIG
			CULG	2041	2400	1	2041	2323	1				IS
	2041	2400	CULG				2041	2203					IIIS,W
			CULG				2119.5	2120	1	2119.5	2120	1	IIIB
			CULG				2123		1				IIIB
			CULG	2154		2							I IIB
			CULG				2203	2400					IIIN,W
	2219	2400	MANI										
			CULG				2249.5		1	2249.5		1	IIIB
			CULG				2338		1				IIIB
			CULG				2354.5	2356.5	2	2355	2355.5	2	IIIG
14	0000	0740	CULG	0000	0151	1							IS
			CULG				0000	0740					IIIN,W
	0000	0915	MANI										
			CULG				0005.5		2				IIIB
			CULG				0104		1				IIIB
			CULG	0142		1	0142		1				IIIB
			CULG	0147	0147.5	2							IIIG
			CULG	0151	0450								IS,W
			CULG				0200	0330	1				IS
			CULG	0230	0232	1							IIIG
			CULG	0325		1							FAST DRIFT
			CULG	0333.5	0334	1							FAST DRIFT
			CULG	0339	0341.5	1							IIIG
			CULG	0430	0438.5	1							IIIG
			CULG	0450	0740	1							IS
			CULG				0457.5	0458.5	2				IIIG
			CULG				0458.5	0459.5	1				IIIG
			CULG				0508	0539	1				IS
			CULG				0539	0600	2				IS
			CULG	0618	0618.5	2	0618	0618.5	2				IIIG
			CULG				0622		1				IIIB
	0734	0953	DURN				0734 E	0953 D	1				I,DC
	0750	1015	WEIS				0754.0	1455.0	1				IN
	1031	1513	WEIS				0930.3	0930.5	1				IIIG
			WEIS	0944.5	0945.3	2							IIIG,RS

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JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			DURN	0944.5	0945.3	3							IIIGG,RS
			WEIS				1154.3	1155.1	2				IIIG,RS
			WEIS				1156.3	1201.3	2				II, HARM
			WEIS				1225.5	1228.7	2				IIIG
	1216	2129	SGMR				1310.7	1311.2	1				222G
			WEIS				1311.4	1312.6	3				IIIG
			WEIS				1343.1	1343.3	2				IIIG
			WEIS				1357.3	1357.6	3				IIIG
	1459	1540	DURN				1459 E	1540 D	2				I,DC
	2041	2400	CULG				2041	2400	1				IS
			CULG	2041	2400								IS,W
			CULG				2047.5		1				IIIB,U
			CULG				2158						IIIB,W
			CULG				2159.5	2200					IIIG,W
			CULG				2224	2224.5					IIIG,W
	2225	2400	MANI										
			CULG	2228	2229.5	1	2227	2229.5	1				IIIGG
			CULG	2234	2234.5	2	2234	2236	3				IIIG,V,U
			CULG	2306	2309.5	1							FAST DRIFT
15			CULG				0000	0133	1				IS
	0000	0741	CULG	0000	0110								IS,W
	0000	0920	MANI										
			CULG				0105.5	0106	2				IIIB
			CULG	0105	0106	2							IIIG
			CULG				0106.5	0108	2	0107	0107.5	1	IIIG,U
			CULG				0120.5						IIIB,W
			CULG	0134.5	0136	2							IIIG
			CULG	0137.5	0138	1							IIIG
			CULG	0155.5	0156	1							IIIG,RS
			CULG				0227.5	0228	1				UNCLF
			CULG	0228	0232	1							IIIG
			CULG				0230.5	0232	1				UNCLF
			CULG	0251.5	0252								IIIG,W
			CULG				0407	0415	2				II
			CULG				0452						IIIG,W
			CULG	0454	0455	2							IIIG
			CULG	0500	0519	1							IS
			CULG	0519	0730								IN,W
			CULG				0533	0533.5					IIIG,W
			CULG				0540	0542.5	2	0540.5	0542	1	IIIG,V
			CULG				0546	0552					IIIS,W
	0734	1541	DURN										
	0749	1514	WEIS				0911.3	0912.0	2				IIIG
			WEIS				0931.1	0931.8	2				IIIG
			WEIS				0935.3	0935.8	2				IIIG
			WEIS				1101.5	1101.9	1				IIIG
			WEIS				1134.5	1134.7	2				IIIG,U
			WEIS				1238.4	1240.3	3				IIIG,RS
			WEIS				1325.6	1325.9	2				IIIG
			WEIS				1334.9	1337.9	3				IIIG/V,RS
	1216	2130	SGMR				1335.1	1337.0	2				IIIG
			WEIS				1338.7	1341.9	3				IIIG
	2041	2400	CULG				2041	2145					IS,W
			CULG				2053						IIIB,W
			CULG				2055.5		1				IIIB
			CULG	2124	2124.5	2	2124	2125	2				IIIG
			CULG	2125.5	2126	2	2125.5	2126	2				IIIG
			CULG				2139.5	2140	1				IIIB
			CULG	2142	2400								IS,W
			CULG				2144	2145					IIIG,W
			CULG	2145.5	2151.5	2	2149.5	2151.5	2	2150	2151	1	IIIG
			CULG				2145	2219	1				IS
	2226	2400	MANI										
			CULG	2233	2234	1	2233	2238.5	3	2233.5	2235	2	IIIGG,V
			CULG	2238	2241	1							IIIGG
			CULG	2309.5	2311	3							IIIG,RS
16	0000	0915	MANI										
	0000	0741	CULG	0052	0741								IN,W

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JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			CULG	0121	0123.5	1							IIIG
			CULG				0128						IIIB,W
			CULG				0144	0354					IIIS,W
			CULG	0215.5	0216	2							IIIB
			CULG	0352	0353	1							FAST DRIFT
			CULG				0354	0414	1				IIIS
			CULG				0401	0741					IN,W
			CULG				0414	0615					IIIS,W
			CULG				0615	0626	1				IIIS
			CULG				0626	0741					IIIS,W
	0734	1542	DURN										
			CULG	0739	0739.5	3							IIIG
	0748	1512	WEIS				0938.3	0941.4	2				IIIGG
			WEIS				0953.7	0954.8	2				IIIG
			WEIS				1001.3	1001.4	1				IIIB
			WEIS				1019.2	1019.3	1				IIIB
			WEIS				1035.5	1040.3	1				IIIGG
	1215	2131	SGMR										
			WEIS				1348.4	1349.2	2				IIIG
			CULG				2042	2400					IIIN,W
	2042	2400	CULG				2042	2400	1				IS
			CULG				2055	2055.5	2				IIIB
			CULG	2244	2245	1							IIIG
	2246	2400	MANI										
			CULG	2305.5	2306	1	2305.5	2306	2				IIIG
			CULG				2336.5	2340	1				DC
			CULG				2340.5	2341.5	1				IIIG
17	0000	0742	CULG				0000	0429	1				IS
			CULG				0000	0507					IIIN,W
	0000	0915	MANI										
			CULG				0007	0008	1				IIIG
			CULG				0050.5		1				IIIB
			CULG	0110.5	0111								W,FASTDRIF
			CULG				0359.5	0401.5	1	0400.5	0402	1	IIIG
			CULG	0425	0742								IN,W
			CULG				0429	0742					IS,W
	0735	1543	DURN										
	0747	1518	WEIS										
	1215	2132	SGMR										
	2042	2400	CULG				2054	2330					IS,W
			CULG				2209.5		1				IIIB
			CULG				2213	2213.5					IIIG,W
			CULG				2214.5	2215					IIIG,W
			CULG				2235	2236					IIIG,W
			CULG				2239.5	2241	1				IIIG
			CULG				2310.5						IIIB,W
			CULG				2315.5						IIIB,W
			CULG				2353.5	2355	3	2354	2355	3	IIIG,V
	2226	2400	MANI							2354.4	2354.9	1	III
18	0000	0915	MANI										
			CULG	0000	0742								IS,W
	0000	0742	CULG				0000	0602					IN,W
			CULG				0158						IIIB,W
			CULG				0159.5		1				IIIB
			CULG							0159.5			IIIB,W
			CULG				0201						IIIB,W
			CULG				0221	0221.5					IIIG,W
			CULG				0326.5						IIIB,W
			CULG				0329		1	0329		1	IIIB
			CULG				0349.5	0350.5					IIIG,W
			CULG				0353	0355	1	0354.5	0355	1	IIIG
			CULG				0404.5	0405	2	0404.5	0405	1	IIIG
			CULG	0443.5	0444	1							FAST DRIFT
			CULG	0504	0505	2							IIIG
			CULG				0552						IIIB,W
			CULG				0553	0553.5	1				IIIG
			CULG				0602	0742	1				IS
			CULG				0633.5	0634	2	0633.5	0634	1	IIIG

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JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
18			CULG				0637.5	0639					IIIG,W
			CULG	0639.5	0641	1	0639.5	0641	3	0640	0640.5	2	IIIGG
			CULG				0659	0742					IIIS,W
	0734	1544	DURN				0734 E	0750	1				I
	0746	1519	WEIS				0827.7	0827.9	1				IIIG
			WEIS				0913.7	0913.9	1				IIIB
			WEIS				0919.3	0919.7	1				IIIG
			WEIS				0958.2	0958.3	1				IIIB
			WEIS				1102.9	1103.7	1				IIIG
	1214	2134	SGMR										
			WEIS				1353.1	1353.3	1				IIIB
	2042	2400	CULG				2042	2400					IB,W
			CULG				2042	2400					IIIN,W
			CULG				2106	2106.5	1				IIIG,U
	2226	2400	MANI										
19	0000	0929	MANI										
	0000	0742	CULG	0000	0742		0000	0042					IS,W
			CULG				0015	0742					IIIN,W
			CULG				0413		1				IIIB
			CULG				0537	0537.5					UNCLF,W
	0746	1202	WEIS				1003.9	1004.1	1				IIIB
			WEIS				1114.5	1115.3	1				IIIG,RS
	0734	1545	DURN	1114.6	1114.9	1	1114.5	1115.4	3				IIIG
	1213	2135	SGMR										
			WEIS				1238.7	1240.3	2				IIIG
			DURN				1238.8	1240.4	2				IIIG
			WEIS				1308.5	1308.9	1				IIIG
			DURN				1308.7	1309.1	1				IIIG
			WEIS				1327.9	1328.3	1				IIIB
			WEIS				1329.5	1518.5	1				IS
			WEIS				1330.5	1336.7	2				IIIGG
			WEIS				1340.0	1340.1	1				IIIB
			WEIS				1341.8	1344.8	2				IIIGG
			WEIS				1346.3	1346.7	1				IIIG
			DURN				1348.1	1350.4	2				IIIG,N
			WEIS				1348.4	1348.5	1				IIIG
			WEIS				1350.3	1350.6	2				IIIG
			WEIS				1353.6	1356.6	2				IIIGG
			WEIS				1427.4	1428.6	2				IIIG
			CULG				2042	2400					IIIN,W
	2042	2400	CULG				2042	2115	1				IS
			CULG				2115	2315					IS,W
	2230	2400	MANI										
			CULG	2245	2245.5	1							FAST DRIFT
			CULG				2315	2349	1				IS
			CULG				2349	2400					IS,W
20	0000	0309	CULG				0000	0018					IS,W
	0000	0917	MANI										
			CULG	0211.5	0212.5	1							IIIG
	0535	0743	CULG	0535	0743	1							IS
			CULG				0559.5		1				IIIB
			CULG				0600.5	0601					IIIG,W
			CULG				0621.5		1				IIIB
			CULG				0623.5	0624					IIIG,W
	0735	1545	DURN				0735 E	1203	1				I,OC
			CULG				0737						IIIB,W
			WEIS				0751.0	1045.0	1				IS
	0746	1521	WEIS				1202.7	1202.9	2				IIIG
	1213	2136	SGMR										
			WEIS				1357.2	1358.3	2				IIIG
	2223	2400	MANI										
21	0000	0320	MANI										
	0300	0743	CULG				0313	0314.5	2				IIIG
			CULG				0315.5						IIIB,W
			CULG				0412	0413.5	2				IIIG
			CULG				0415	0416					IIIG,W
	0744	1522	WEIS				0852.0	1520.0	1				IS

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21	0735	0930	DURN				0925	0930	2				I
	1017	1549	DURN				1017 E	1549 D	1				I,DC
			WEIS				1233.5	1240.6	2				IIIG
			DURN	1312.4	1313.5	3	1312.7	1316.1	3				IIIGG
			WEIS				1312.5	1315.0	3				IIIGG,RS
	1212	2137	SGMR				1313.4	1314.3	1				III
			WEIS				1314.5	1336.5	3				II
			SGMR				1334.4	1335.8	1				IIIG
			WEIS				1339.7	1339.8	1				IIIB
			WEIS				1352.9	1353.1	1				IIIB
			WEIS				1406.0	1406.4	2				IIIG
			WEIS				1510.8	1512.4	3				IIIG
			DURN				1511.2	1511.6	3				IIIG
			SGMR				1511.4	1511.9	2				IIIG
			SGMR				1705.0	1705.4	2				IIIG
	2045	2400	CULG	2045	2317		2045	2400					IS,W
			CULG				2124						IIIB,W
			CULG	2155.5	2156	1	2155.5	2156	1				IIIG
			CULG	2215.5	2216	1	2215.5	2216	1				IIIG
	2226	2400	MANI										
			CULG	2317	2327	1							IS
			CULG	2327	2400								IS,W
22	0000	0743	CULG	0000	0050		0000	0014					IS,W
	0000	0926	MANI										
			CULG	0009	0010	2	0009	0010	1				IIIG
			CULG				0014	0045	1				IS
			CULG	0016.5	0017	1							FAST DRIFT
			CULG				0041.5	0042					IIIG,W
			CULG				0045	0248					IS,W
			CULG				0243	0256					IIIS,W
			CULG				0248	0429	1				IS
			CULG				0249		1				IIIB
			CULG				0319	0743					IIIN,W
			CULG	0353	0600								IN,W
			CULG				0429	0525					IS,W
			CULG				0525	0743	1				IS
			CULG				0532.5	0533.5					IIIG,W
			CULG	0600	0743	1							IS
			CULG				0702.5	0705	1				DC
	0734	1355	DURN				0734 E	1355 D	1				I,DC
	0743	0901	WEIS				0825.3	0826.6	2				IIIGG
			WEIS				0837.0	1504.0	1				IS
			DURN	1002.1	1002.7								DCIM
	0906	1524	WEIS				1126.9	1127.3	1				IIIG
			WEIS				1127.0	1347.6	1				IIIN
	1211	2139	SGMR										
			DURN	1221.2	1221.5	1	1221.2	1221.5	3				IIIG
			CULG	2043	2130	1	2043	2400	1				IS
	2043	2400	CULG				2043	2122	2				IIIS
			CULG	2114	2114.5	2	2114	2114.5	2				IIIG
			CULG	2117	2118.5	3	2117.5	2118.5	2				IIIG
			CULG				2122	2400	1				IIIS
			CULG	2130	2400								IS,W
	2226	2400	MANI										
			CULG	2231.5	2232	2							IIIG
			CULG	2234	2234.5	2							IIIG
			CULG				2317.5	2318.5	1				RS,DP
			CULG				2321.5		2	2322		1	IIIB
			CULG				2321.5	2322	1				RS,DP
23	0000	0743	CULG				0000	0032	1				IIIS
			CULG	0000	0743								IS,W
			CULG				0000	0310	1				IS
			CULG				0032	0039	2	0035	0039	2	IIIS
			CULG				0039	0135	1				IIIS
			CULG				0135	0241					IIIS,W
			CULG				0241	0743					IIIN,W
			CULG				0310	0647					IS,W
			CULG				0357	0357.5	2	0357	0357.5	2	IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23			CULG	0411	0411.5	2							FAST DRIFT
			CULG	0431	0431.5	1							IIIG
			CULG				0432.5	0434	3	0432.5	0433.5	3	IIIG,V
			CULG				0435	0717	2	0435	0558	1	IIIG,N
			CULG				0522.5	0523.5	3	0522.5	0523.5	3	IIIG
	0000	0925	MANI							0607.0	0607.6	1	III
			CULG				0607	0609	3	0607	0608.5	3	IIIG,V
			CULG				0647	0743	1				IS
			MANI							0655.3	0655.7	1	III
			CULG				0655	0657	3	0655.5	0656.5	2	IIIG
			CULG				0719.5	0720	3				IIIB
			CULG	0740	0740.5	2							FAST DRIFT
	0743	1526	WEIS				0753.0	1512.0	2				IIIS
			WEIS				0914.9	0917.1	2				IIIG
			WEIS				1021.9	1023.4	3				IIIG
			WEIS				1106.6	1107.9	2				IIIG,U
			WEIS				1202.7	1203.9	2				IIIG
			WEIS				1217.7	1217.9	2				IIIG
	1225	1430	DURN				1225 E	1430 D					I,DC
			WEIS				1226.5	1227.4	2				IIIG
			WEIS				1236.8	1238.2	3				IIIG
			WEIS				1310.0	1313.4	2				IIIG
			WEIS				1334.5	1336.0	2				IIIG
	1211	2140	SGMR				1334.6	1336.0	1				IIIG
			DURN	1410.1	1412.2	3							IIIGG
			WEIS				1416.5	1417.8	2				IIIG
			WEIS				1442.5	1444.9	3				IIIGG
			SGMR				1442.9	1444.8	2				IIIG
	1459	1553	DURN				1459 E	1553 D	1				I
			SGMR				1545.5	1547.2	1				IIIG
			SGMR				1718.0	1718.2	1				III
			SGMR				1755.1	2140.00	2				IIIS
			SGMR				1822.3	1824.4	3				IIIG
	2043	2400	CULG	2043	2316		2043	2400					IS,W
			CULG				2050.5	2051					IIIG,W
	2229	2400	MANI										
			CULG	2316	2400	1							IS
24	0000	0739	CULG	0000	0739		0000	0739					IS,W
			CULG				0045	0435					IIIN,W
			CULG	0251.5		1	0251.5		1	0251.5		1	IIIB
			CULG				0355.5		2				IIIB
			CULG	0415.5	0418	1	0415.5	0419	3	0416.5	0417.5	3	IIIGG
	0000	0920	MANI							0420.0	0421.3	2	IIIG
			CULG	0432.5	0433	1	0432.5	0433	2	0433		1	IIIG
			CULG	0433.5	0434	1							FAST DRIFT
			CULG	0434.5	0435	2							IIIG
			CULG				0435	0739					IIIS,W
			CULG	0451.5	0452	1							FAST DRIFT
			CULG				0518	0518.5	1				IIIG
			CULG				0536.5	0537	1				IIIG
			CULG	0604	0605	1							IIIG
			CULG				0636.5	0637		0636.5	0637		IIIG,W
			CULG				0714	0717	2				IIIG
	0734	1554	DURN				0734 E	1554 D	1				I
	0742	1332	WEIS				0814.8	1526.5	2				IIIN
			DURN	0907.1	0908.4	2							IIIG
			DURN	0912.3	0913.3	2							IIIG
			DURN				1016.3	1024.3	3				IIIG,N
			DURN				1155.6	1155.6	1				III
	1340	1527	WEIS				1158.5	1159.6	3				IIIG
			DURN				1158.6	1159.8	3				IIIGG
	1210	2141	SGMR										
			DURN	1224.2	1224.9	1							IIIG
			WEIS				1224.5	1226.3	3				IIIGG
			DURN				1255.0	1255.2	2				IIIG
			DURN	1300.1	1300.4	2							IIIG
			CULG	2044	2214	1							IS
	2044	2400	CULG				2044	2135					IN,W
			CULG				2054	2400					IIIN,W

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24			CULG	2206.5		1							IIIB
	2221	2400	MANI										
			CULG	2226.5	2227	2							IIIG
			CULG	2250	2250.5	1							IIIB
25	0000	0743	CULG				0000	0743					IIIN,W
			CULG				0007	0048					IIIS,W
			CULG				0015.5	0016	2	0015.5	0016	2	IIIB
			CULG				0017	0017.5	1	0017	0017.5	1	IIIB
			CULG	0048.5	0049	2	0048.5	0049.5	3	0049	0049.5	2	IIIG
			CULG	0138	0144	1	0138	0144	2	0138	0143.5	1	IIIGG
			CULG				0146	0322	1				IS
			CULG				0149						RS,DP,W
			CULG				0240	0240.5	1				RS,DP
	0000	0921	MANI							0310.0	0310.3		III
			CULG	0310		1	0309.5	0310.5	3	0310	0310.5	3	IIIG,V
			CULG				0322	0743	2				IS,DC
			CULG							0324	0340	1	S.W.F.
			MANI							0327.3	0328.6	2	IIIG
			CULG	0327	0331	2	0327.5	0330	3	0327.5	0330.5	3	IIIGG,V
			CULG	0440.5	0442.5	2	0440.5	0443	2	0441	0442	2	IIIGG
			CULG	0518	0526	1							IS
			CULG	0724.5	0727	2	0724.5	0726	3	0725		2	IIIG
			MANI							0725.7	0726.0	1	III
			CULG	0728	0731.5	2	0728.5	0730	3				IIIGG
	0733	1410	DURN				0733	1410 D	1				I,DC
	0739	1531	WEIS				0746.0	1318.0	1				IN
			WEIS				0819.8	0821.3	1				IIIG
			WEIS				0943.4	0943.5	2				IIIB
			WEIS				0946.1	0946.2	1				IIIB
			WEIS				0950.4	0950.9	2				IIIG
			DURN				0951.1	0951.2	2				IIIG
			WEIS				0956.0	0958.0	3				IIIGG
			DURN				0956.5	0957.3	2				IIIGG
			WEIS				1005.9	1006.9	2				IIIG
			DURN	1016.4	1018.2	2	1016.4	1018.2	3				IIIGG
			WEIS				1016.5	1018.3	3				IIIG
			WEIS				1053.2	1053.5	1				IIIB
			WEIS				1055.9	1102.3	3				IIIGG
			DURN	1056.7	1102.2	3	1056.7	1102.2	3				IIIGG
			WEIS				1106.1	1106.3	2				IIIG
			WEIS				1107.8	1107.9	1				IIIB
			WEIS				1114.5	1117.9	1				IIIG
			WEIS				1149.8	1150.2	1				IIIB
			WEIS				1205.5	1206.7	2				IIIG
	1209	2142	SGMR										
			WEIS				1245.6	1247.3	2				IIIG
			DURN	1246.8	1247.0	3	1246.8	1247.0	1				IIIG
	1528	1555	DURN										
	2050	2353	CULG	2050	2140								IS,W
			CULG				2050	2353					IIIS,W
			CULG				2137.5		1				IIIB
			CULG				2140.5	2142	3	2141	2141.5	2	IIIG
			CULG				2157	2213					IS,W
	2225	2400	MANI										
			CULG				2236.5	2239	3	2237	2238.5	2	IIIG
			CULG				2245.5	2246	1	2245.5	2246	2	IIIG
			CULG				2317.5		3				IIIB,U
26	0000	0925	MANI										
	0540	0735	CULG	0540	0624	1							IS
			CULG				0540	0735					IIIS,W
	0734	1536	WEIS				0752.0	1511.0	2				IIIN
			WEIS				0842.0	1513.5	1				IN
			WEIS				1113.5	1114.8	2				IIIG
			WEIS				1135.7	1136.9	3				IIIG,U
			WEIS				1143.5	1143.9	3				IIIG
			WEIS				1206.9	1209.5	3				IIIG
			WEIS				1333.9	1334.5	2				IIIG
			WEIS				1337.9	1340.5	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			WEIS				1411.0	1415.2	3				IIIGG
	1208	2144	SGMR				1411.5	1415.4	3				IIIG
			WEIS				1434.3	1434.7	3				IIIB
			SGMR				1842.5	1844.1	1				IIIG
	2045	2400	CULG	2045	2400	1							IS
			CULG				2045	2400					IIIS,W
			CULG				2049		1				RS,DP
			CULG	2104	2107	1	2103.5	2107	2				IIIGG
			CULG				2113		1				RS,DP
			CULG				2119	2400	1	2119	2400	1	IIIG,N
			CULG				2120	2122.5	2	2120.5	2121	1	IIIGG
			CULG	2133.5		1	2133.5	2134	2	2133.5	2134	2	IIIG
			CULG				2145	2146	1	2145	2146	2	IIIG
			CULG				2147		2	2147		2	IIIG
			CULG				2149	2150	2				IIIG
			CULG	2205.5		1	2205.5	2206	3	2205.5	2206	3	IIIG
			CULG	2214	2214.5	1	2213.5	2214.5	2	2214	2214.5	2	IIIG
	2226	2400	MANI										
			CULG	2229.5		1	2229.5	2231.5	2	2230	2231.5	1	IIIG
			CULG				2259	2330					IS,W
			CULG				2316.5	2318.5	2	2317	2318	1	IIIGG
			CULG				2330	2400	1				IS
			CULG				2342	2342.5	2	2342.5	2343	1	IIIG
			CULG				2352	2352.5	1				IIIG
			CULG				2356.5	2357	1	2357	2357.5	1	IIIG
27	0000	0744	CULG				0000	0000.5	1	0000	0000.5	2	IIIB
			CULG				0000	0246	1				IS
			CULG	0000	0115								IS,W
			CULG				0000	0744					IIIS,W
			CULG				0010.5	0011	1	0010.5	0011	1	IIIG
			CULG				0054.5	0055.5	1	0054.5	0055	1	IIIG
			CULG	0115	0744	1							IS
			CULG				0122.5	0123	1	0122.5	0123.5	1	IIIG
			CULG				0126.5	0127	2	0127	0127.5	2	IIIG,V
			CULG				0200.5	0201	1	0200.5	0201	2	IIIG
			CULG				0208		1	0208		1	IIIB
			CULG	0219.5		1	0218.5	0221	2	0219	0221	2	IIIGG
	0000	0925	MANI							0221.0	0221.3	1	III
			CULG				0234.5		1	0234.5		1	IIIB
			CULG				0246	0328					IS,W
			CULG				0332	0744	1				IIIN
			CULG				0517.5		1	0517.5		1	IIIB
			CULG				0519	0521	2	0519.5	0521	1	IIIG
			CULG				0526		1	0526		1	IIIB
			CULG	0548.5	0549	2							IIIG
			CULG				0602	0603	2				IIIG
			CULG				0605.5	0607	3	0605.5	0606	1	IIIG
			MANI							0605.6	0605.8	1	III
			CULG	0625	0625.5	2							IIIG
			CULG				0627	0630	2				IIIG
			CULG	0636	0637	2							IIIG
			CULG	0638	0639.5	2	0637.5	0639.5	3	0637.5	0638	2	IIIG
			CULG				0641.5	0642	2				IIIG
			CULG				0651		2				IIIB
			CULG	0658	0659	1	0658	0659	3	0658.5	0659	1	IIIG
			CULG	0712.5	0713	2	0712.5	0713	1				IIIG
			CULG	0714.5	0715.5	3	0715.5		1				IIIG
			CULG	0716	0732	1							IIIN
			CULG	0723.5		2							IIIB
			WEIS				0742.0	0938.0	1				IS
	0733	0945	WEIS				0756.3	0757.5	2				IIIB
	1004	1538	WEIS				0802.8	0803.4	1				IIIG
			WEIS				0805.9	0806.9	3				IIIGG
			WEIS				0809.5	0809.7	1				IIIB
			WEIS				0838.2	0838.3	2				IIIG
			WEIS				0848.8	0849.7	2				IIIG
			WEIS				0853.9	0854.0	1				IIIB
			WEIS				0855.3	0856.2	1				IIIG
			WEIS				0857.9	0858.6	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
27			WEIS				0900.7	0900.9	2				IIIG
			WEIS				0924.8	0925.2	2				IIIG
			WEIS				1054.5	1055.6	2				IIIG
			WEIS				1112.0	1112.8	2				IIIG
			WEIS				1116.8	1123.0	3				IIIGG
	1205	1302	DURN				1205 E	1302 D	1				I,DC
			DURN				1209.7	1219.9	3				IIIGG,N
			WEIS				1209.8	1212.3	2				IIIG
			DURN	1212.2	1212.7	1							IIIGG
			WEIS				1214.6	1215.9	3				IIIGG
	1207	2145	SGMR				1214.8	1215.2	2				IIIG
			DURN	1217.4	1217.7	1							IIIG
			DURN				1252.1	1252.1	2				I II
			DURN				1259.4	1259.4	3				IIIG
	1345	1600	DURN				1345 E	1600	1				I
			DURN				1533.2	1533.4	2				IIIG
			DURN	1553.0	1558.6	3	1552.6	1558.6	3				IIIGG
			SGMR				1557.6	1559.9	3				IIIG
			SGMR				1725.9	1726.1	2				III
			SGMR				1729.9	1730.1	2				V
	2045	2400	CULG				2045	2400					IIIS,W
			CULG	2045	2400	1							IS
			CULG				2045	2400	1				IS
			CULG				2054		1	2054		1	IIIB
			CULG				2147.5	2148	1				IIIG
			CULG							2147.5			IIIG,W
			CULG				2150	2150.5	1	2150.5	2151	1	IIIG
			CULG				2152.5	2153	1	2152.5	2153	1	IIIG
			CULG				2155.5	2400	1				SCINTILLAT
			CULG	2241	2241.5	2	2241	2241.5	2				IIIG
	2241	2400	MANI										
			CULG				2249	2335.5	2	2249.5	2326	2	IIIGN
			CULG				2255	2359	1				SCINTILLAT
28	0000	0745	CULG	0000	0745	1	0000	0745	1				IS
			CULG				0000	0745					IIIS,W
			CULG				0000	0745	1				IIIN
			CULG				0111.5			0112			IIIB,W
			CULG							0128			IIIB,W
			CULG				0128	0128.5	1				IIIG
			CULG	0134	0134.5	1	0134	0134.5	2	0134	0134.5	3	IIIG
			CULG	0138		2							IIIB
			CULG	0220	0220.5	2	0220	0220.5	2	0220	0220.5	1	IIIG
			CULG				0244.5	0245	1				IIIG
			CULG	0251.5		1	0251.5		2				IIIB
			CULG	0306.5	0307.5	1							F/ST DRIFT
			CULG	0306.5	0307	1	0306.5	0307	3	0306.5	0307	2	IIIG
			CULG	0308	0310	2	0308	0310	2				IIIG
			CULG							0311.5	0315	2	IIIB,V
			CULG	0312.5			0312.5						IIIB,W
			CULG	0319	0319.5	2	0319	0319.5	2				IIIG
			CULG				0415	0416	3	0415	0416.5	3	IIIG,V
			CULG	0432.5	0433	1	0432	0434	2				IIIG
	0000	0925	MANI							0439.5	0439.6	1	I II
			CULG	0439	0439.5	2	0439	0439.5	3	0439	0439.5	3	IIIG
			CULG				0450.5	0451	2				IIIB
			CULG				0522.5	0525	3	0522.5	0525	3	IIIG,V
			MANI							0523.0	0523.2	1	III
			MANI							0613.7	0613.9	1	III
			CULG	0613	0613.5	2	0613	0614	3	0613.5	0614	3	IIIG
			CULG	0616	0617.5	2	0616	0617	2	0616.5	0617	1	IIIG
			CULG				0621.5	0634	1				SCINTILLAT
			CULG	0639.5	0640	1	0639.5	0640	2				IIIG
	0733	1601	DURN				0733 E	1601 D	1				I,DC
	0739	1539	WEIS				0757.7	0758.3	3				I IIG
			WEIS				0810.6	0810.7	1				IIIG
			DURN				0838.6	0839.9	2				IIIGG
			DURN	0957.5	0957.8	3	0957.4	0957.9	3				IIIGG
			DURN				1010.5	1010.6	2				IIIG
			DURN	1041.8	1042.0	2	1040.8	1042.0	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			WEIS				1050.9	1051.6	3				IIIG
			DURN				1214.7	1228.3	3				IIIG,N
			DURN	1242.5	1243.0	2	1240.9	1243.0	3				IIIGG
			DURN	1250.7	1253.7	3	1249.5	1253.7	3				IIIGG
	1206	2146	SGMR				1351.0	1351.6	2				IIIG
			DURN	1421.8	1421.9	2							IIIG
			DURN				1435.0	1436.6	3				IIIGG
			DURN				1534.2	1534.5	3				IIIG
			DURN				1537.7	1538.8	3				IIIGG
	2045	2400	CULG				2045	2105	1				SCINTILLAT
			CULG				2045	2400					IIIN,W
			CULG				2045	2400	1				IS
			CULG	2045	2140								IS,W
			CULG	2140	2229	1							IS
			CULG				2143.5		1				IIIB
			CULG				2205		1				IIIB
			CULG	2229	2400								IS,W
	2233	2400	MANI										
			CULG				2235.5		1				IIIB
			CULG	2255.5		1							IIIB
			CULG	2301.5		1	2301.5		1				IIIB
			CULG	2319	2350	1							IIIN
29	0000	0745	CULG	0000	0115								IN,W
			CULG				0000	0745	1				IS
			CULG				0000	0343					IIIN,W
			CULG	0018.5		1							IIIG
			CULG	0024	0029	1							IIIN
			CULG				0040.5		2	0040.5		2	IIIB
			CULG				0054.5		2				IIIB
			CULG	0115	0735	1							IS
			CULG				0132	0132.5	1				IIIB
			CULG				0222	0223	2	0222.5	0223	1	IIIG
			CULG	0223	0224	2	0223	0224	2				IIIG
			CULG	0224.5	0227	1	0226	0227	2				IIIG
			CULG				0318.5	0319	2	0318.5	0319	1	IIIG
			CULG				0342.5	0745	1				IIIN
			CULG	0359	0402	1							IIIGG
			CULG	0407	0407.5	1	0407	0408	1				IIIG
			CULG	0413.5	0414	2	0414		1				IIIG
			CULG				0417.5	0418	3	0417.5	0418.5	3	IIIB,V
	0000	0925	MANI							0419.5	0419.8	1	III
			CULG				0521		2				IIIB
			CULG	0608.5	0609.5	2	0608.5	0609.5	1				IIIG
			CULG				0733.5		2				IIIB
	0733	1604	DURN				0733 E	1604 D	1				I,DC
			DURN				0837.1	0841.6	2				IIIGG
			DURN				0852.9	0853.0	2				IIIG
	0839	1541	WEIS				0926.7	0931.3	1				IIIG
			WEIS				0940.9	0941.0	2				IIIG
			DURN				1031.1	1031.2	2				III
			WEIS				1038.5	1038.7	2				IIIB
			WEIS				1048.5	1051.7	3				IIIG
			WEIS				1105.8	1106.1	1				IIIG
			DURN				1138.3	1138.6	3				IIIG
			DURN	1148.2	1150.4	3	1147.9	1149.8	3				IIIGG
			DURN				1205.7	1205.9	3				IIIG
			WEIS				1237.3	1239.1	2				IIIG
			WEIS				1249.6	1250.3	1				IIIG
			DURN				1334.6	1334.9	3				IIIG
	1205	2148	SGMR				1338.4	1339.1	2				IIIG
			DURN	1338.6	1338.9	3	1338.6	1338.9	3				IIIG
			SGMR				1349.7	1350.0	2				IIIG
			DURN	1407.4	1407.7	2	1407.4	1407.7	2				IIIG
			DURN				1550.2	1550.8	3				IIIGG,RS
			SGMR				1550.7	1551.1	2				IIIG
			SGMR				1933.3	1933.6	2				IIIG
			SGMR				1951.6	1952.0	2				IIIG
			SGMR				2004.7	2004.9	2				IIIG
			CULG				2045	2400					IIIN,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29	2045	2400	CULG				2045	2400					IN,W
			CULG	2053.5	2055	2	2053.5	2055	2				IIIGG
			CULG	2223	2400	1							IS,DC
	2225	2400	MANI										
			CULG				2235	2235.5	2				IIIG
			CULG	2302		1	2302		1				IIIB
			CULG	2331	2332.5	1	2331	2332.5	1				IIIG
30	0000	0745	CULG	0000	0040	1							IS
			CULG				0000	0540					IIIN,W
			CULG				0000	0112					IS,W
	0000	0924	MANI										
			CULG	0027.5	0028	2	0027.5	0028	1				IIIG
			CULG	0152		1							FAST DRIFT
			CULG	0156.5	0157	3	0156.5	0157	2				IIIG
			CULG				0214	0603					IS,W
			CULG	0349	0358.5	1							I
			CULG				0457		1				IIIB
			CULG	0502	0504	1							IIG
			CULG	0536	0745								IN,W
			CULG				0540	0745					IIIS,W
			CULG				0603	0745	1				IS
	0741	1000	WEIS				0750.7	0750.9	2				IIIG
	1204	2149	SGMR										
	1204	1543	WEIS				1219.8	1220.1	1				IIIG
	0734	1606	DURN				1231.0	1231.1	2				III
			DURN	1425.0	1432.8	3	1425.0	1432.8	3				IIIG,N
			CULG				2045	2400					IIIS,W
	2045	2400	CULG				2045	2400	1				IS
			CULG	2049	2400								IN,W
			CULG	2054	2055	2							IIIGG
			CULG	2055	2124.5	1							IIIG,N
			CULG	2109	2109.5	2	2109	2110	2				IIIG
			CULG	2119.5	2120	2	2119.5	2120	1				IIIG
			CULG				2206.5	2207.5	3	2206.5	2207.5	3	IIIG,V
	2230	2400	MANI										
			CULG	2323	2324.5	2	2323	2323.5	1				IIIG
			CULG	2327	2328	2							IIIG
31			CULG				0000	0745	1				IS
	0000	0745	CULG				0000	0149					IIIS,W
	0000	0408	MANI										
			CULG	0011.5	0049								IS,W
			CULG	0033	0041	1							IIIG,N
			CULG	0051	0051.5	2							IIIG
			CULG				0149	0745					IIIN,W
			CULG	0339	0339.5	1							IIIG
			CULG				0353.5	0354	3	0353.4	0354	2	IIIG
			CULG				0445		1				IIIB
			CULG	0459	0512	1							IIIG,N
			CULG	0551	0554.5	2							IIIG
			CULG				0626.5	0627	2	0627	0627.5	2	IIIG
			CULG				0653	0654.5	1				IIIG
			CULG	0715	0717	1							IIIG
			CULG	0727	0727.5	1							IIIG
	0733	1608	DURN				0733 E	1608 D	1				I,DC
			DURN				0920.2	0920.7	2				IIIG
			DURN	1012.0	1012.2	3	1012.0	1012.2	3				IIIG
			DURN	1143.2	1143.6	3	1143.2	1143.6	3				IIIG
	1203	2150	SGMR										
			DURN				1528.6	1528.7	3				III
			DURN				1552.0	1552.1	2				III
	2045	2400	CULG				2045	2128	2				IS,C
			CULG				2045	2131					IIIS,W
			CULG	2124	2125	1							IIIGG
			CULG				2128	2400	1				IS
			CULG				2131		1				IIIB
			CULG				2159.5	2200	3	2159.5	2200	2	IIIB
			CULG				2159	2400					IIIN,W
			CULG				2209		2	2209		2	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1979

JAN 1979	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31	2229	2400	MANI										
			CULG				2242		2				IIIB
			CULG				2322.5	2323.5					IIIG,W
			CULG				2349		1				IIIB,U
			CULG				2354.5		1				IIIB

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

SELECTED SOLAR EVENTS

JANUARY 1979

Culgoora

UT Date 197 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
1	0029	0033	43.25	1.0			3		
			80	1.5	315		2	IIIGG,V	*
			160	1.8			2		
	0249	0251.5	43.25	1.0			3		
			80	1.5	315		2	IIIGG	
			160	1.8			2		
	0249	0251.5	43.25	1.0			3		
			80	1.5	315		2	Possible II	
			160	1.8			2		
	0251	0321	43.25	1.0			2		
			80	1.5	315	R	1	Possible IV	
			160	1.8			1		
	0349	0351	80	1.0	135		2	IIIG	
			160				2		
	2340	2355	80	1.0	330	R	2	IS	
			160	.8			1		
2	2247	2251	43.25	1.5	70		3		
			80	.7	75		2	IIIGG,V	*
			160	.5	80		1		
	2253	2310	43.25	1.5	70		3		
			80	.7	75		2	II	
			160	.5	80		1		
	2330	2334	43.25	1.0	25		3	IIIGG,V	
			80	0	315				
3	0003	0004	43.25	1.6	320		3	IIIG	
			80	1.0			2		
	0006	0008	43.25	0	0		3	IIIGG,U	
			80						
	2300	2341	80	1.5	225	R	2	IS	
			160	1.2			1		
4	0047	0048	43.25	1.8			3		
			80	1.2	45		2	IIIG	*
			160	.8			2		
			80	1.2	135		2		
			160	1.0			2		

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

UT Date 197.9 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
5	0021	0021.5	43.25	.5	170		3		
			80	1.0	105		2	IIIG,W	
				1.0	225		2		
	0026	0033	43.25	.5	170		3	II	
			80	1.0	105		2		
	0342	0347	43.25	2.0	300		3		
			80	1.5	270		3		
				1.5	105		3	IIIGG	*
			160	1.5	265		2		
				1.5	105		2		
	0511.5	0513	43.25				3		
			80	1.5	355		3	IIIGG,V	
			160				2		
6	0023	0030	43.25	0	0		3	II	
	0027	0027.5	80	1.0	225		3	IIIB	
			160	.8	315				
6/7	2300	0500	80	1.0	230	Varying	2	IS	Type I activity from this region persisted from 6th to 9th January.
			160				2		
	0229	0230	43.25	0	0		3		
			80	1.0	225		3	IIIG	
			160	1.0	225		2		
7/8	2300	0500	80	.4	20	Varying	2	IS	Type I activity from this region persisted until 14th.
			160						
	0232	0310	43.25	1.7					Complex source
			(A) 80	1.2	45		3	II ,IVM	Type IV moved from position (A) to position (B) at times indicated.
			160	1.2					
			43.25	3.0	45		3		
			(B) 80	2.0					
9	0046.5	0047	43.25	1.4					
			80	1.2	240		3	IIIG	*
			160	1.0					

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

SELECTED SOLAR EVENTS

JANUARY 1979

Culgoora

UT Date 1979 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
9	0250.5	0251.5	43.25)	2.0	) 55		3)	IIIB	
			80)	1.0	) 90		2)		
	0316.5	0318	43.25)	2.0	) 315		3)		
			80)	1.7	) 315		2)	IIIG	*
			160)	.5	) 0		2)		
10	0002.5	0003.5	80)	1.1	) 350		3)	IIIG	*
			160)	.7	)		2)		
	0115.5	0116	43.25)	1.2	)		)		
			80)	1.2	) 330		2)	IIIB	*
			160)	.8	)		)		
11	0056	0102	43.25)	2.0	) 65		3)	IIIGG,V,U	) Complex Source
			80)	1.5	)		)		)
	0104	0112	43.25)	2.0	) 45		3)	II	)
			80)	1.0	)		)		
13	0355.5	0400	43.25)	2.1	)		)		
			80)	1.4	) 350		3)	IIIGG	
			160)	1.1	)		)		
	2338.5		43.25)				2)		
			80)	0	0		2)	IIIB	
			160)				1)		
	2354.5	2356.5	43.25)	1.7	)		3)		
			80)	1.2	) 315		2)	IIIG	
			160)	1.2	)		2)		
14	0005.5		43.25)		)		3)		
			80)	.5	) 100		3)	IIIB	
			160)		)		2)		
14/15	2300	0500	80)	1.7	) 315	Varying	1)		Type I activity persisted from this region until 17th.
			160)	1.1	)		)		
	0105	0109	43.25)	1.5	)		3)		
			80)	1.5	) 280		3)	IIIG,U	*
			160)	1.1	)		2)		
	0407	0415	80)	2.0	) 240		1)	II	
			160)	1.6	) 280		)		

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

UT Date 1979 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
15/16	2300	0500	160)	.5	270	R	2	IS	Type I activity persisted from this region until 19th.
17	0007	0008	43.25)	1.9	) 45		3)	IIIG	
			80)	1.4	)		2)		
	0359	0402	43.25)	1.5	)		2)		
			80)	1.3	) 240		3)	III G	
			160)	1.0	)		2)		
17/18	2300	0500	160	.5	55	Varying	1	IS	Type I activity persisted from this region until 20th.
	0353	0355	43.25)	1.7	) 300		3)	IIIG	*
			80)	1.3	)		2)		
	0404.5	0405.5	43.25)	1.7	) 55		3)	IIIG	*
			80)	1.5	)		2)		
19	0413		43.25)	1.5	)		2)		
			80)	1.0	) 45		)	IIIB	
			160)	.6	)		)		
21	0313	0314	43.25)	2.0	) 45		3)	IIIG	
			80)	1.6	)		2)		
	0412	0414	80)	1.0	) 20		3)	IIIG	
			160)	.6	) 0		)		
21/22	2340	0500	80)	.3	45	Varying	1)	IS	Type I activity persisted from this region until 28th.
			160)						
23	0356	0357	43.25)	1.0	) 0		2)	IIIG	
			80)	.5	)		)		
	0432	0433	43.25)	1.5	) 55		3)	IIIG,V	*
			80)	1.3	)		)		
23/24	2340	0130	80)	0	) 0		1)	IS	Type I activity persisted from this region until 27th.
			160)						
23/24	2340	0416	80)	1.1	) 40		1)	IS	Type I activity persisted from this region until 26th.
			160)	.7	)		)		

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

SELECTED SOLAR EVENTS

JANUARY 1979

Culgoora

UT Date 197.9 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
23/24	0416	0419	43.25)	2.0	) 20		3)		
			80)	1.1	) 45		3)	IIIGG	*
			160)	.8	) 65		2)		
25	0327	0331	43.25)	1.7	)		)		
			80)	1.3	) 90		3)	IIIGG,V	*
			160)	.7	)		)		
	0440	0441.5	43.25)		)		)		
			80)	.9	) 205		3)	IIIGG	
			160)		)		)		
26	0030	0031.5	43.25)	0	0		)		
			80)	0	0		3)	IIIG	*
			160)	.2	270		)		
	0056	0100	43.25)	1.0	) 45		3)		
			80)	.5	) 135		2)	IIIG	
			160)	.5	) 145		2)		
26/27	2356	0001	80)	.7	) 190	R	1)	IS	Type I activity persisted from this region until 30th.
			160)				2)		
27	0054.5	0055.5	43.25	.5	0		3	IIIG	
	0122.5	0123	43.25)	2.0	) 50		3)	IIIG	
			80)	1.6	)		1)		
	0218.5	0223	43.25)	1.0	) 315		3)	IIIGG	
			80)	.4	)		)		
28	0101	0101.5	43.25)	1.5	315		2	IIIG	
	0308	0310	80)	.3	) 225		3)	IIIG	*
			160)		)		)		
29	0040	0041	43.25)	1.7	310		3	IIIB	
	0318.5	0319	43.25)	1.5	)		3)		
			80)	1.2	) 45		2)	IIIG	*
			160)	1.0	)		3)		
	0417.5	0418	43.25)		) 285		3)		
			80)	.8	) 255		3)	IIIB,V	*
			160)		) 225		2)		
30	0156.5	0157	43.25)	1.5	)		2)		
			80)	1.2	) 45		2)	IIIG	
			160)	1.0	)		3)		

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

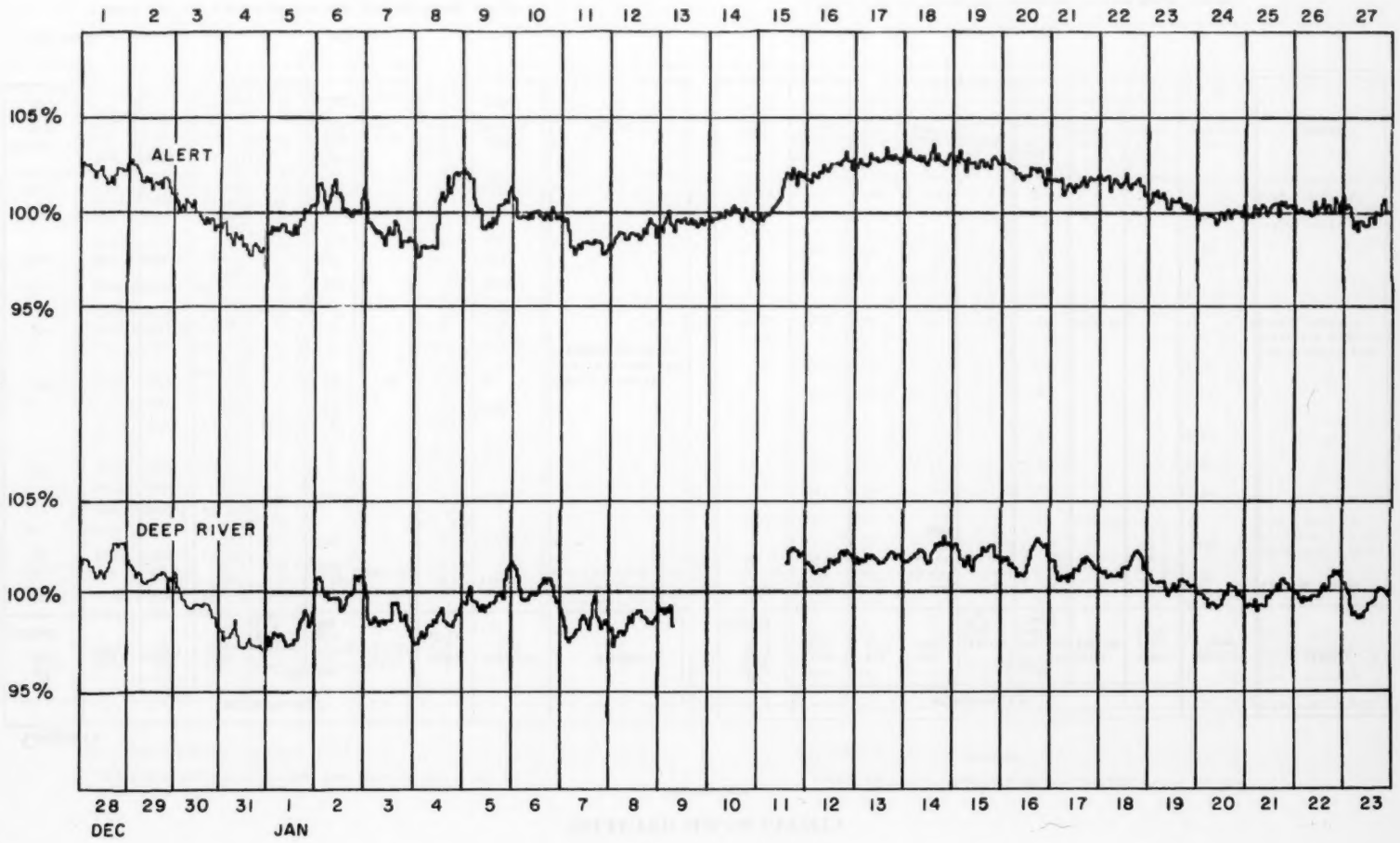
UT Date 197.9 JANUARY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
30/31	2320	0354	80)	1.2	) 25	L	2)	IS	Complex source
			160)	.8	)		2)		
31	0353.5	0354	43.25)	1.6	)		2)		
			80)	1.3	) 35		1)	IIIG	*
			160)	1.0	)		2)		

Days without Heliograph observations: Nil

* Other type III's observed from same position during the day.

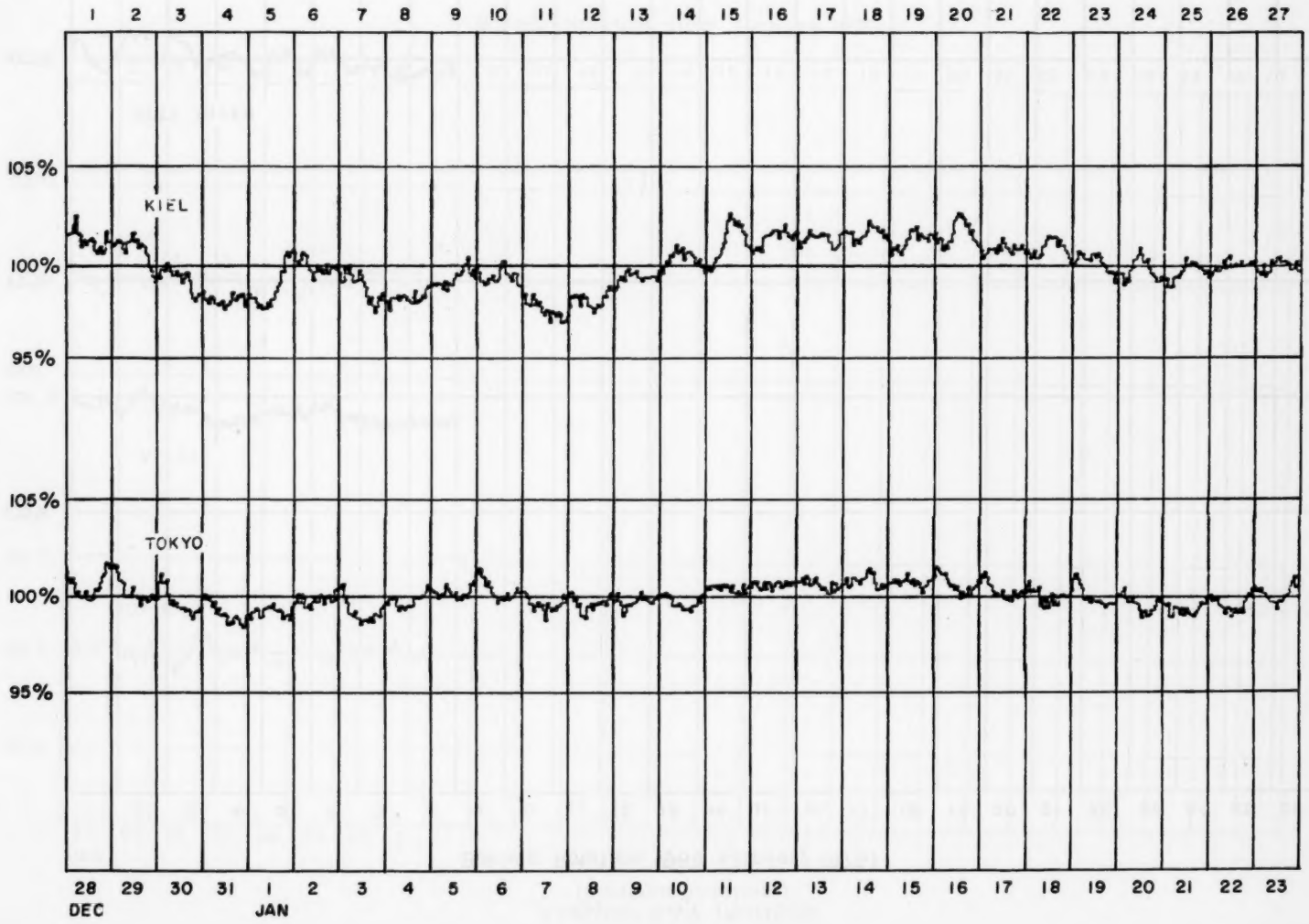
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1988 (December 1978 - January 1979)



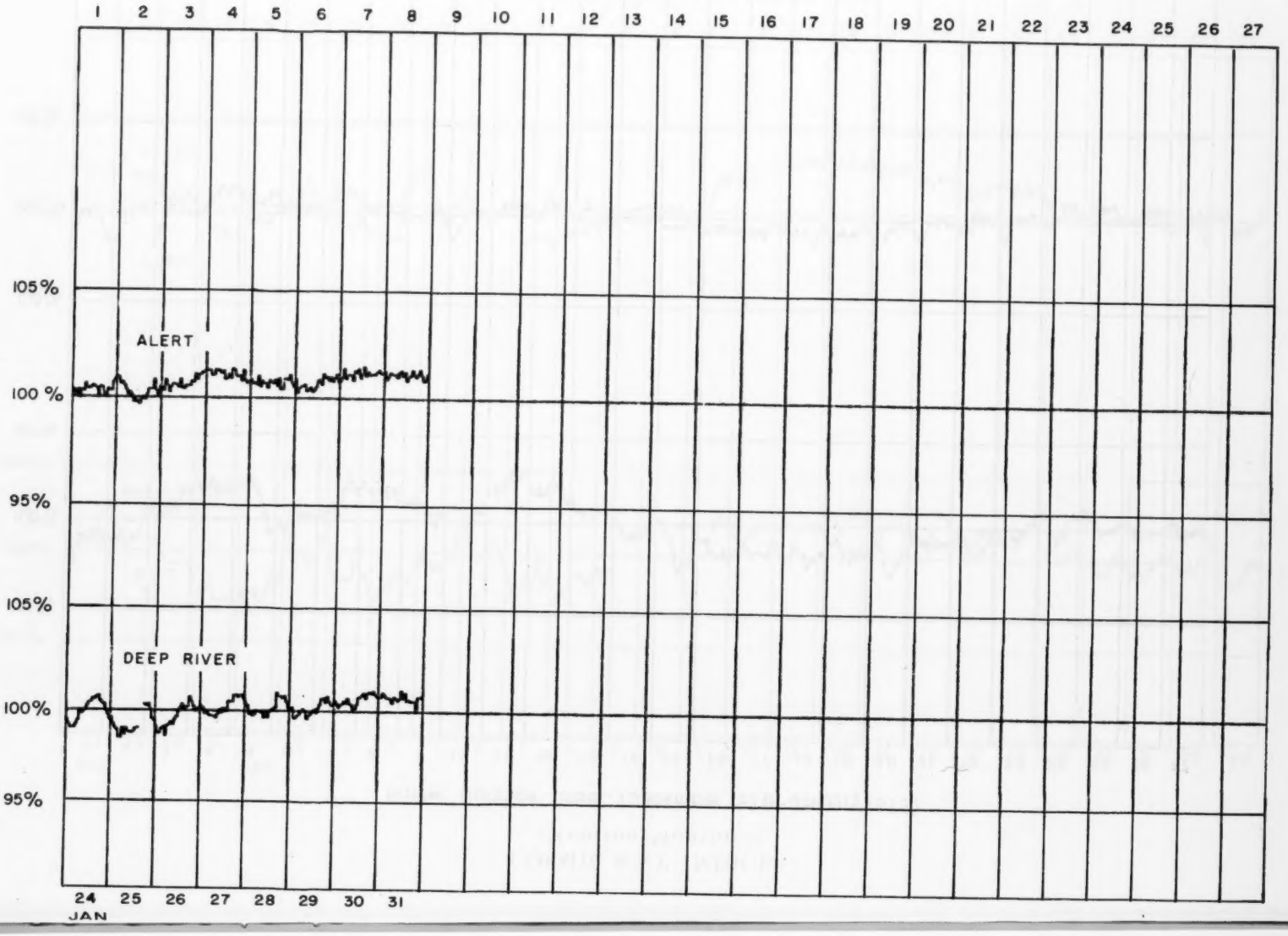
COSMIC RAY INDICES
(Neutron Monitors)

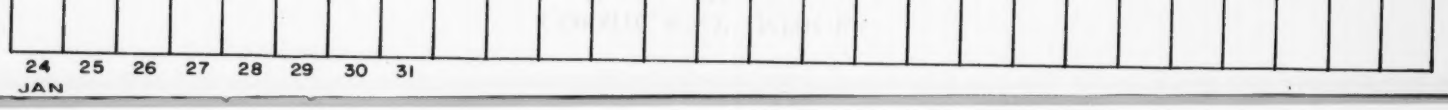
Bartel Rotation 1988 (December 1978 - January 1979)



COSMIC RAY INDICES
(Neutron Monitors)

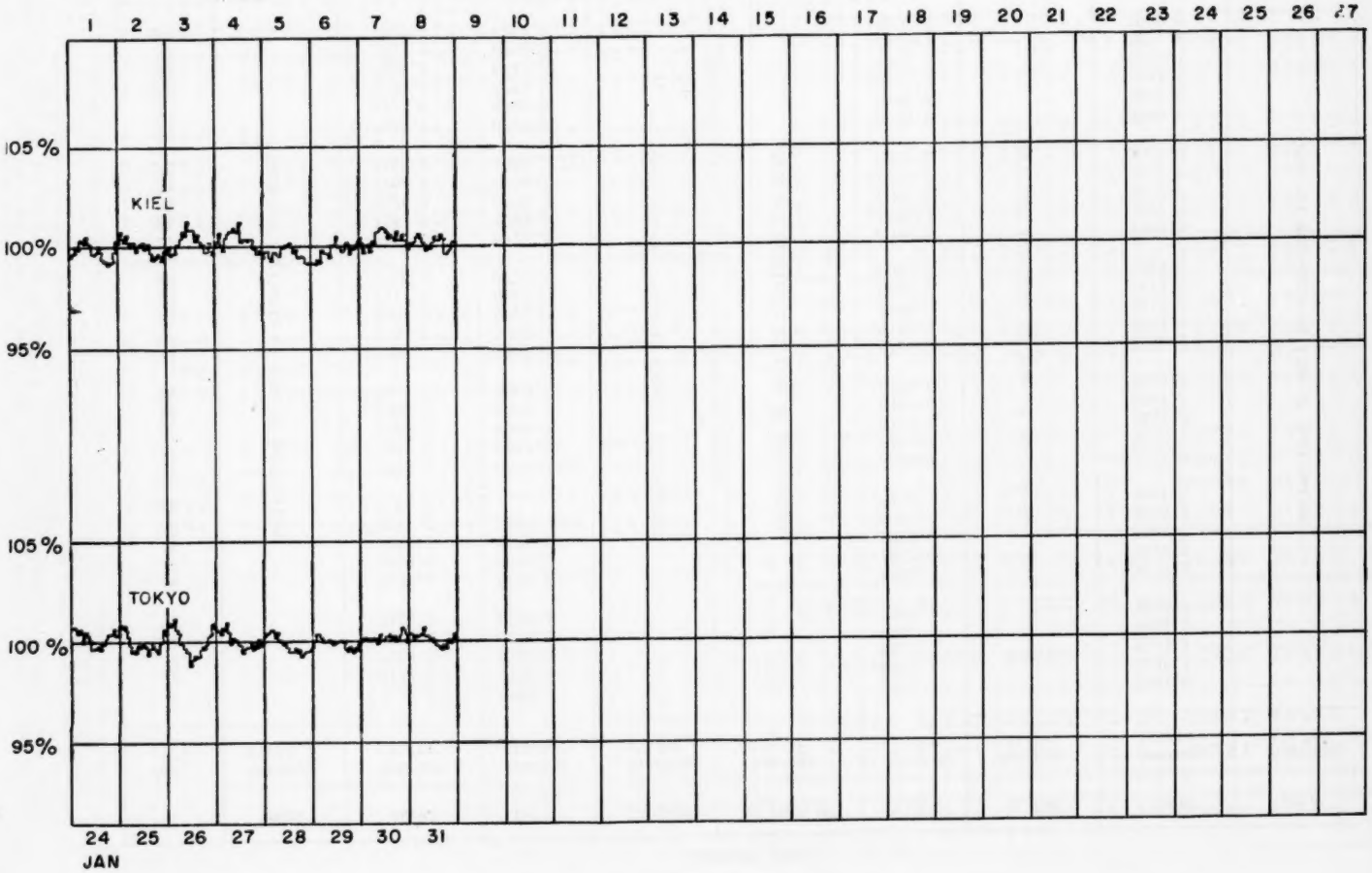
Bartels Rotation 1989 (January 1979)





COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1989 (January 1979)



COSMIC RAY INDICES

(Neutron Monitors)

JANUARY 1979

Jan. 1979	THULE Average cts/hr	ALERT Average cts/hr	DEEP RIVER Average cts/hr	CALGARY Average cts/hr	SULPHUR MT. Average cts/hr	KIEL Average cts/hr	CLIMAX Average cts/hr	TOKYO Average cts/hr	KULA Average cts/hr
1		7093.3	6598.0			6023.4		3581.9	
2		7177.5	6739.8			6093.4		3605.7	
3		7059.3	6653.6			6025.8		3583.7	
4		7122.4	6625.3			5991.2		3604.2	
5		7165.7	6720.4			6054.1		3619.7	
6		7126.1	6755.2			6058.5		3624.8	
7		7024.8	6631.5			5952.6		3597.8	
8		7055.5	6628.6			5984.9		3599.7	
9		7097.3	6673.0(8)			6057.5		3603.2	
10		7124.5				6116.1		3601.5	
11		7202.5	6876.7(9)			6169.9		3627.4	
12		7299.0	6842.3			6184.1		3635.1	
13		7329.3	6856.9			6179.3		3635.2	
14		7338.9	6878.1			6197.5		3642.3	
15		7319.3	6868.5			6174.8		3639.2	
16		7286.2	6854.1			6197.5		3636.5	
17		7243.7	6818.0			6145.8		3623.4	
18		7243.2	6823.0			6149.0		3612.8	
19		7172.2	6765.8			6104.2		3613.0	
20		7126.8	6720.3			6081.7		3599.0	
21		7148.0	6722.5			6073.3		3588.3	
22		7151.0	6745.8			6095.3		3597.9	
23		7124.3	6705.8			6090.9		3617.7	
24		7164.4	6736.7			6113.8		3617.8	
25		7156.7	6687.1(21)			6126.0		3607.9	
26		7193.7	6718.0			6139.2		3609.5	
27		7227.6	6756.0			6147.3		3611.5	
28		7196.4	6753.0			6105.0		3603.6	
29		7194.3	6748.7			6112.7		3605.0	
30		7233.5	6786.0			6150.9		3615.9	
31		7230.0	6792.3			6135.0		3612.0	
MEAN		7181.5	6749.4			6104.2		3612.0	

Data not available at time of publication

( ) is the number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Scaling Factors: 100 for Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula; 300 for Deep River; 256 for Tokyo.

GEOMAGNETIC ACTIVITY INDICES

JANUARY 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *				Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M		
1	Q7A	2	3	2-	2-	2+	1	1	4	17-	2	3-	1	1+	2+	1	1+	3	10	17	16	14	20	0.5
2		3-	1+	2-	3+	3+	4-	5-	4+	25	1+	1+	2-	3	3+	3+	4+	4+	19	37	35	18	55	1.0
3		4	4-	2+	3+	3	3	4	3+	27-	3	3-	2	3	3	3	4-	4-	19	31	28	27	33	1.0
4	D1	4+	5	5-	4-	5-	5+	6-	5+	39-	4-	3+	3+	3+	5-	5	6-	4+	45	71	54	42	84	1.5
5		5+	5	3+	3-	2	3+	3	3-	27+	4+	3+	3-	2	2-	3	3	2+	23	32	24	34	23	1.1
6		4-	2+	2+	3+	4+	4	3	2+	25+	3+	3-	3	3	4	4+	4-	3	18	32	47	34	46	1.0
7	D4	1+	1	2+	3+	5-	5+	6+	4	28+	2	2-	3	3-	5-	5	6	4-	32	56	50	22	84	1.3
8	Q6A	3+	2+	3-	1	1-	1+	2	2+	16-	3+	3-	3-	2-	1-	2-	2	3-	8	14	14	18	10	0.5
9		1	5-	3+	2+	3-	3-	2+	2-	23-	3	5-	4-	2+	3	3+	3	3-	15	26	42	48	21	0.8
10	Q1	1+	1+	1-	0+	1-	0+	2	1	8-	2-	1	1	0	1	1	2	2-	4	7	6	7	7	CK	0.1
11	Q2	2	2-	1-	2+	2-	0+	0	0+	9	1-	1+	1-	2	2-	1-	0+	1-	4	8	7	11	4	CK	0.2
12	Q8A	1+	3-	2+	2	3-	2	2	3+	18+	1+	3-	3-	2-	3-	2+	2+	3	10	18	21	18	21	K	0.5
13	Q3K	3+	0	1-	1	1	1	1-	1-	8+	2+	1-	0+	1-	1	1+	1+	1	5	6	8	8	6	CK	0.2
14	Q5A	1-	2-	2+	2+	3-	3	1+	0+	14+	2-	2-	2-	2-	3	3	2-	1+	8	12	16	12	17		0.4
15		1	2	2	4-	3+	3	4	4-	23-	2+	2+	2	3	3+	3	4-	3	15	24	30	22	33		0.9
16		3+	4-	3	3-	3-	2-	1-	2-	19+	3-	3+	2+	2	2	1+	1-	2-	12	20	18	27	11		0.7
17	Q4A	0+	1	0+	2-	3-	2+	2+	3-	13+	1-	2-	1	2-	2+	3-	3-	3-	7	15	20	7	27		0.4
18	Q0A	3	3	1+	3-	3-	3	2+	2	20	2+	2-	1+	2+	3	3	3-	2+	11	18	18	17	20		0.6
19		4+	5	3-	3+	3-	2+	2+	3-	25+	4	4+	3-	3	2+	3-	3-	3	19	27	28	39	17		1.0
20		3	3	3	2+	2+	3-	3-	1+	20+	2-	3-	2+	2+	3-	3-	2+	2-	12	21	20	21	21		0.7
21	Q3A	3	3-	2	3	3	3-	2	2-	20	3	2	2-	3-	3	3-	2+	2-	11	18	21	23	17		0.6
22		0	1-	1+	2	3	1+	4+	5	18-	0+	1+	2-	2-	3	2-	4	5-	14	31	18	7	42		0.8
23	D5	3	2	2+	4+	4+	4	5+	5-	30	2	2-	2	4	4	4+	5-	5-	27	39	42	28	53		1.2
24		6-	5-	3-	3+	2+	3-	3-	3-	27-	4	3-	3-	3+	2+	3	3	3-	23	35	30	42	23		1.1
25	D2	6-	6-	4-	4-	4	4-	4	3+	34-	5-	4	3+	4	4+	4	4	3	34	52	52	58	46		1.3
26	D3	4+	4-	3	3+	3	4+	4+	5+	31+	3	3	3-	3-	2+	4+	4+	4+	28	52	39	31	60		1.2
27		4-	5	4-	3-	2+	3	4-	4+	28+	3	4	3-	3-	2	3+	3+	4-	23	41	36	36	41		1.1
28		2+	3	3-	3+	3	2+	3+	2	22	3-	2+	3-	3	2	2	3+	2	13	22	26	22	27		0.7
29		3	3	3-	2+	3+	2+	3-	3	22+	3-	2+	3-	1+	3	3-	3-	2+	13	26	25	22	29		0.8
30		3+	3-	3+	3	3+	2+	3	4	25	2+	2-	3-	3-	3	2+	3-	3+	16	36	22	30	29		0.9
31		3	3-	3-	3+	3	2-	3-	3-	22-	2	2	2-	3-	3	2-	3-	3-	13	22	19	21	21		0.7
																			16	28.0	27.0	27.5			0.80

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	2	3-	1	1+	2+	1	1+	3	2	3-	1	1+	2+	1	1+	3
2	1+	1+	2-	3	3+	3+	4+	4+	1+	1+	2-	3	3+	3+	4+	4+
3	3	3-	2	3	3	3	4-	4-	3	3-	2	3	3	3	4-	4-
4	4-	3+	3+	3+	5-	5	6-	4+	4-	3+	3+	3+	5-	5	6-	4+
5	4+	3+	3-	2	2-	3	3	2+	4+	3+	3-	2	2-	3	3	2+
6	3+	3-	3	3	4	4+	4-	3	3+	3-	3	3	4	4+	4-	3
7	2	2-	3	3-	5-	5	6	4-	2	2-	3	3-	5-	5	6	4-
8	3+	3-	3-	2-	1-	2-	2	3-	3+	3-	3-	2-	1-	2-	2	3-
9	3	5-	4-	2+	3	3+	3	3-	3	5-	4-	2+	3	3+	3	3-
10	2-	1	1	0	1	1	2	2-	2-	1	1	0	1	1	2	2-
11	1-	1+	1-	2	2-	1-	0+	1-	1-	1+	1-	2	2-	1-	0+	1-
12	1+	3-	3-	2-	3-	2+	2+	3	1+	3-	3-	2-	3-	2+	2+	3
13	2+	1-	0+	1-	1	1+	1+	1	2+	1-	0+	1-	1	1+	1+	1
14	2-	2-	2-	2-	3	3	2-	1+	2-	2-	2-	2-	3	3	2-	1+
15	2+	2+	2	3	3+	3	4-	3	2+	2+	2	3	3+	3	4-	3
16	3-	3+	2+	2	2	1+	1-	2-	3-	3+	2+	2	2	1+	1-	2-
17	1-	2-	1	2-	2+	3-	3-	3-	1-	2-	1	2-	2+	3-	3-	3-
18	2+	2-	1+	2+	3	3	3-	2+	2+	2-	1+	2+	3	3	3-	2+
19	4	4+	3-	3	2+	3-	3-	3	4	4+	3-	3	2+	3-	3-	3
20	2-	3-	2+	2+	3-	3-	2+	2-	2-	3-	2+	2+	3-	3-	2+	2-
21	3	2	2-	3-	3	3-	2+	2-	3	2	2-	3-	3	3-	2+	2-
22	0+	1+	2-	2-	3	2-	4	5-	0+	1+	2-	2-	3	2-	4	5-
23	2	2-	2	4	4	4+	5-	5-	2	2-	2	4	4	4+	5-	5-
24	4	3-	3-	3+	2+	3	3	3-	4	3-	3-	3+	2+	3	3	3-
25	5-	4	3+	4	4+	4	4	3	5-	4	3+	4	4+	4	4	3
26	3	3	3-	3-	2+	4+	4+	4+	3	3	3-	3-	2+	4+	4+	4+
27	3	4	3-	3-	2	3+	3+	4-	3	4	3-	3-	2	3+	3+	4-
28	3-	2+	3-	3	2	2	3+	2	3-	2+	3-	3	2	2	3+	2
29	3-	2+	3-	1+	3	3-	3-	2+	3-	2+	3-	1+	3	3-	3-	2+
30	2+	2-	3-	3-	3	2+	3-	3+	2+	2-	3-	3-	3	2+	3-	3+
31	2	2	2-	3-	3	2-	3-	3-	2	2	2-	3-	3	2-	3-	3-

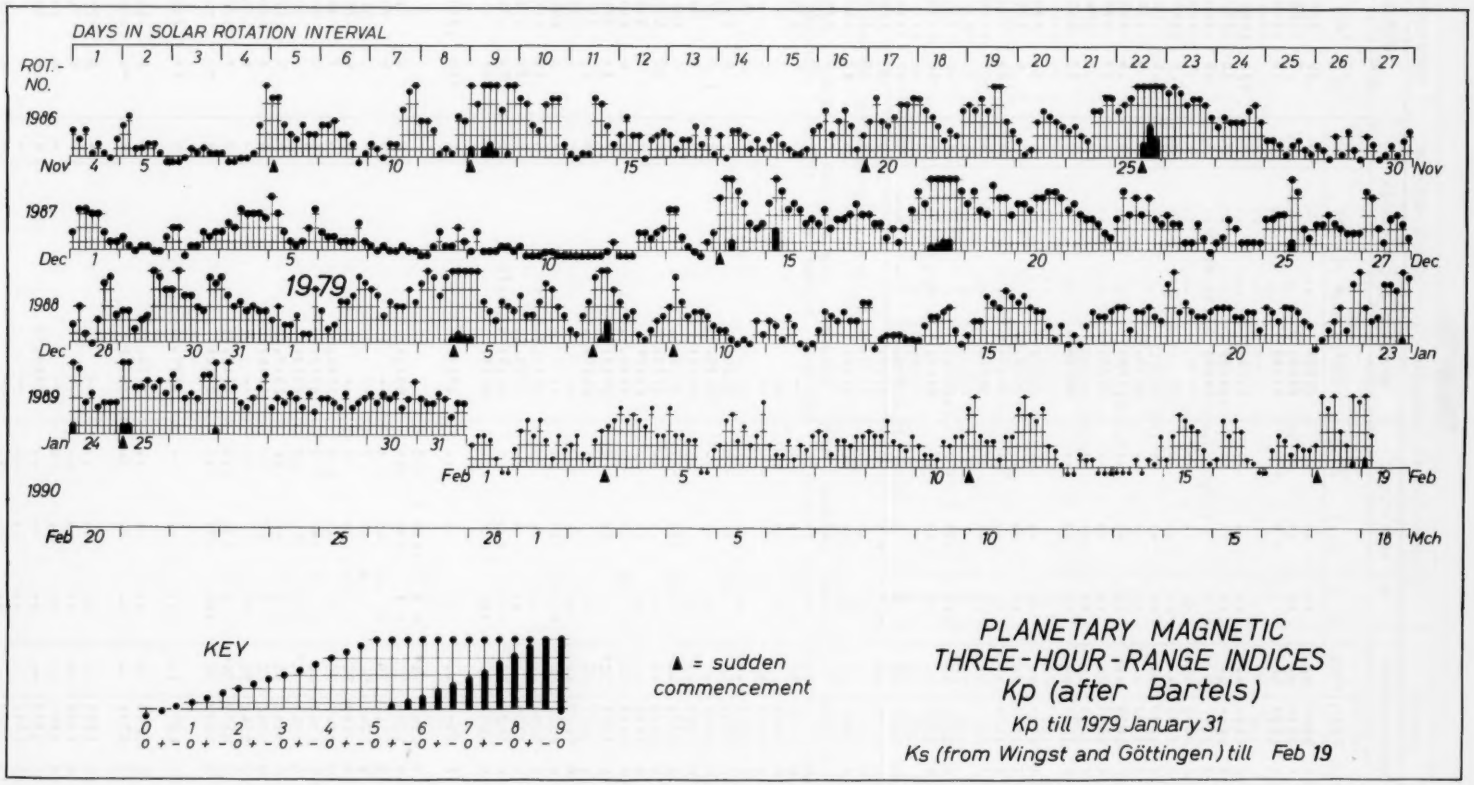
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days (Q1-Q0(10)) and five most disturbed days (D1-D5) are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap ≤6 but one Kp ≥3o or two Kp values ≥3-"). An * means "not really disturbed" (Ap<20).

Georagnetic three-hourly indices (Kn), (Ks) and (Km) as in IAGA-Bulletin No. 32 and indices (aa), "antipodal", as in IAGA-Bulletin No. 33 prepared by P. N. Mayaud of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 12 UT.

DAILY AVERAGE INDICES Ap

DAY	1978 FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1979 JAN
1	15	33	12	88	9	6	4	21	13	13	11	10
2	14	27	15	94	82	5	4	20	12	10	3	19
3	14	15	41	83	31	11	16	11	8	12	5	19
4	11	3	55	96	26	80	30	8	17	5	12	45
5	17	6	21	7	38	53	22	7	8	6	10	23
6	14	7	9	5	8	13	16	14	4	2	5	18
7	7	9	5	7	11	14	7	6	4	9	2	32
8	10	20	5	16	10	14	6	24	5	14	3	8
9	16	14	6	85	4	8	5	31	11	8	3	15
10	7	12	36	10	24	10	6	12	15	16	1	4
11	5	7	64	30	17	6	11	12	5	10	1	4
12	10	3	29	18	10	4	21	13	14	53	4	10
13	8	12	24	11	7	20	13	6	8	22	7	5
14	11	10	51	9	4	48	6	5	5	11	28	8
15	48	17	19	5	6	6	3	3	5	8	28	15
16	11	24	8	7	6	6	4	6	4	6	14	12
17	10	25	7	8	9	6	9	8	5	6	9	7
18	10	24	19	5	11	18	24	3	32	5	48	11
19	12	15	38	4	17	11	11	2	22	13	24	19
20	12	9	23	8	11	5	3	5	9	22	26	12
21	12	7	9	26	33	6	6	9	13	16	12	11
22	22	13	8	24	15	8	6	12	10	28	19	14
23	6	15	22	24	18	8	4	11	6	12	7	27
24	5	6	48	26	19	6	4	10	5	18	6	23
25	12	3	17	10	24	8	9	36	7	60	21	34
26	37	49	18	7	46	5	4	36	18	33	8	28
27	42	70	16	5	15	4	29	51	23	17	14	23
28	46	17	12	7	12	6	124	50	14	5	14	13
29		14	6	8	32	4	40	109	16	4	20	13
30		16	58	18	31	3	31	11	25	5	27	16
31		8		12		2	45		20		18	13
MEAN	16	16	23	25	20	13	17	18	12	15	13	16

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

JANUARY 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
NEW	55.1N	1	10--	..	..	..	..	05(2)	6	35	128	213	05	11
HYB	07.6N	1	2000	..	..	..	..	02(6,7)	5	3	88	29	03	01
GNA	43.3S	1	0127	SC*	- 2.2	- 6 *	- 6 *	07(8)	6	18	110	120	08	12
COL	64.6N	2	11--	..	..	..	..	04(6)	7	236	1660	870	05	20
SIT	60.1N	2	11--	..	..	..	..	04(5)	6	80	580	470	05	06
FRD	49.6N	2	20--	..				04(8) 05(1) 07(7)	5	25	124	54	08	00
JAI	17.3N	2	1000	..	..	..	..	--	-	5	123	47	06	02
SHL	14.6N	2	1000	..	..	..	..	--	-	5	114	56	06	02
UJJ	13.5N	2	1000	..	..	..	..	--	-	5	150	39	06	02
ABG	09.5N	2	1000	..	..	..	..	02(6,7)	5	4	128	42	06	02
ANN	01.4N	2	1000	..	..	..	..	21(4)	4	4	143	68	06	02
HUA	00.6S	2	1000	..	..	..	..	02(5,6,7)	5	13	277	42	03	05
TRD	01.2S	2	1000	..	..	..	..	--	-	2	174	90	06	02
TOO	46.7S	2	1100	..	..	..	..	04(5,7)	5	17	150	70	05	06
IRK	41.0N	3	10--	..	..	..	..	04(7)	6	21	130	43	05	12
HYB	07.6N	3	1100	..	..	..	..	04(5,7)	5	4	121	37	05	08
HUA	00.6S	3	1124	..	..	..	..	04(5,6,7,8)	5	14	350	84	05	21
KGL	56.5S	3	09--	..	..	..	..	04(7)	3	--	--	--	05	03
WIT	54.2N	4	1725	SC*	+15 *	+85 *	+ 2	04(6)	7	56	230	75	05	04
HER	33.7S	4	0300	..	..	..	..	04(7)	5	20	99	92	05	12
NEW	55.1N	6	2151	SC	1	9	--	07(6,7)	5	32	172	103	08	08
WIT	54.2N	6	2151	SC	- 1	+ 9	0	07(7)	6	33	165	85	08	03
IRK	41.0N	6	01--	..	..	..	..	07(5,6,7)	6	19	147	41	08	12
SJG	29.9N	6	2300	..	..	..	..	08(7)	6	12	130	32	08	08
JAI	17.3N	6	2330	SC	- .8	13	- 4	--	-	7	134	29	08	23
JAI	17.3N	6	0600	..	..	..	..	--	-	5	62	26	06	21
SHL	14.6N	6	2330	SC	- .6	11	3	--	-	5	139	32	08	23
SHL	14.6N	6	0600	..	..	..	..	--	-	3	55	16	06	21
UJJ	13.5N	6	2330	SC	- .6	16	- 4	--	-	5	--	--	08	23
UJJ	13.5N	6	0600	..	..	..	..	--	-	4	74	30	06	21
AEG	09.5N	6	2330	SC	- .6	12	- 6	06(6)	5	5	154	21	08	23
ABG	09.5N	6	0600	..	..	..	..	04(5,7)	5	3	87	38	06	21
HYB	07.6N	6	0100	..	..	..	..	06(6)	5	4	92	36	06	19
HYB	07.6N	6	2332	SC	- .5	+12	- 1	07(5,6,7)	6	5	167	35	08	11
GUA	04.0N	6	0138	..	..	..	..	07(5)	5	10	150	40	08	11
ANN	01.4N	6	0600	..	..	..	..	22(7)	5	3	148	78	06	21
ANN	01.4N	6	2330	SC	- .9	14	10	23(5,7,8)	5	4	219	75	08	23
HUA	00.6S	6	2151	SC*	1	13	2	07(7)	7	11	394	56	08	21
HUA	00.6S	6	0127	SC	--	15	3	06(5,6,7)	6	12	336	79	06	20
TRD	01.2S	6	0600	..	..	..	..	--	-	1	193	80	06	21
TRD	01.2S	6	2330	SC	- .2	12	14	--	-	3	260	125	08	23
PMG	18.6S	6	0126	..	..	..	..	07(4,5,6,7)	5	10	110	80	08	11
HER	33.7S	6	2300	..	..	..	..	07(5,6,7)	5	30	191	143	08	12
TOO	46.7S	6	0128	SC	+ 2	+ 4	--	06(5) 07(6,7)	5	20	130	50	08	00
KGL	56.5S	6	0647	SC	+16	+12	+ 1	07(7)	8	--	--	--	08	00
COL	64.6N	7	09--	..	..	..	..	07(7)	7	216	1270	710	08	07
SIT	60.1N	9	0341	SI*	- 8 *	+123 *	-13 *							
HON	21.1N	9	0339	SC	- 1	+31	+14	09(1)	4	4	31	14	10	00
JAI	17.3N	9	0343	SC	- .6	19	- 4	--	-	4	73	18	09	23
SHL	14.6N	9	0340	SC	.8	32	2	--	-	5	61	29	09	23
UJJ	13.5N	9	0343	SC	.1	14	2	--	-	4	77	25	09	23
ABG	09.5N	9	0340	SC	--	22	+ 2	07(5,6)	6	3	92	36	09	23
HYB	07.6N	9	0340	SC	- .2	+40	- 3	09(2)	5	4	94	29	09	23
GUA	04.0N	9	0343	SC*	+ 1	+56	-18	09(2)	5	--	80	50	09	23
ANN	01.4N	9	0340	SC	- 1.7	48	22	25(2,4)	5	5	117	68	09	23
HUA	00.6S	9	0340	SC	2	62	11	09(6)	6	8	180	38	10	02
TRD	01.2S	9	0340	SC	--	--	--	--	-	4	156	--	09	23
TOO	46.7S	9	0339	SC*	- 7 *	+90 *	+10	09(2,3)	5	7	120	60	09	16
KGL	56.5S	9	0339	SC	+64	+37	+12	09(2)	4	--	--	--	09	21
HUA	00.6S	14	1250	..	..	..	..	15(5,6)	6	17	323	70	15	23
HYB	07.6N	15	0200	..	..	..	..	15(4,5)	4	3	114	29	16	05
GUA	04.0N	15	0231	..	..	..	..	15(4)	5	--	130	30	16	06
JAI	17.3N	18	1300	..	..	..	..	--	-	6	72	37	21	18
SHL	14.6N	18	1300	..	..	..	..	--	-	5	75	30	21	18
UJJ	13.5N	18	1300	..	..	..	..	--	-	6	79	34	21	18
ABG	09.5N	18	1300	..	..	..	..	09(2,3)	5	5	95	42	21	18
ANN	01.4N	18	1300	..	..	..	..	--	-				21	18
TRD	01.2S	18	1300	..	..	..	..	--	-	6	143	84	21	18

PRINCIPAL MAGNETIC STORMS

JANUARY 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
GUA	04.0N	19	0613	..	..	..	..	19(1)	5	--	120	40	19	17
SIT	60.1N	22	09--	..	..	..	..	23(5)	7	60	570	530	28	01
WIT	54.2N	22	1900	..	..	..	..	22(7) 23(7)	6	33	145	70	24	04
JAI	17.3N	22	1800	..	..	..	..	--	-	7	134	32	29	01
SHL	14.6N	22	1800	..	..	..	..	--	-	5	141	30	29	01
UJJ	13.5N	22	1800	..	..	..	..	--	-	6	153	31	29	01
ABG	09.5N	22	1800	..	..	..	..	19(1,4)	4	6	149	49	29	01
HYB	07.6N	22	1800	..	..	..	..	23(5,6,7,8) 25(2)	5	5	163	31	25	22
ANN	01.4N	22	1800	..	..	..	..	--	-				29	01
TRD	01.2S	22	1800	..	..	..	..	--	-	--	--	--	29	01
HER	33.7S	22	1400	..	..	..	..	22(8) 26(7)	5	34	140	128	28	01
COL	64.6N	23	09--	..	..	..	..	23(4,5,6,7)	6	243	1420	780		
NEW	55.1N	23	05--	..	..	..	..	24(1)	6	41	150	181		
FRD	49.6N	23	09--	..				24(1) 25(1)	6	27	152	70	27	13
IRK	41.0N	23	04--	..	..	..	..	23(5)	6	30	96	46	24	06
HUA	00.6S	23	0329	..	..	..	..	06(6)	6	14	320	59	25	01
TOO	46.7S	23	09--	..	..	..	..	23(4) 25(5)	5	20	150	50	28	00
KGL	56.5S	23	09--	..	..	..	..	23(7,8) 24(1)	6	--	--	--	24	05
COL	64.6N	25	0139	SC*	-20	+138	-32	25(5)	6	--	--	--	27	24
NEW	55.1N	25	0139	SC	2	18	3	25(2)	5	32	110	194	28	06
WIT	54.2N	25	0140	SC*	- 2	+35 *	0	26(7,8)	6	30	160	70	27	22
GUA	04.0N	25	0140	SC*	--	+43	-18	25(1)	5	10	150	30	27	07
HUA	00.6S	25	0133	SC	1	30	5	25(6)	7	10	294	43	27	02
KGL	56.5S	25	0137	SC*	+41	-42	-11	25(5,6,7) 26(7)	6	--	--	--	27	00

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD IRKUTSK JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JANUARY 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc).

```
04   1725  A: SOD  WNG  COI
           B: NGK  QUE
           C: CZT  (si:  A:   FUR  -bps:  B: EBR  TOL)

06   2330  A: PMG
           B: KAK  KSA  QUE
           C: EBR  HAZ  KNY  (si:  C:   TOL)

09  .0340  A: SOD  ESK  WNG  DOU  VIC  FUR  EBR  TOL  ALM  PMG  KGL  DRV
           B: AQU  COI
           C: NGK  HAD  (si:  A:  CZT  -pi2: A:  MMB)

25   0139  A: COI  ALM  QUE  KGL
           B: SOD  WNG  DOU  VIC  MMB  AQU  EBR  TOL  DRV
           C: NGK  HAD  HAZ  CZT  (si:  A:  FUR  -pi1: A:  FUR  MMB)
```

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

16 1036 - .... WNG

21 1312 - 1330 WNG

Very unusual events

none

RADIO PROPAGATION QUALITY INDICES

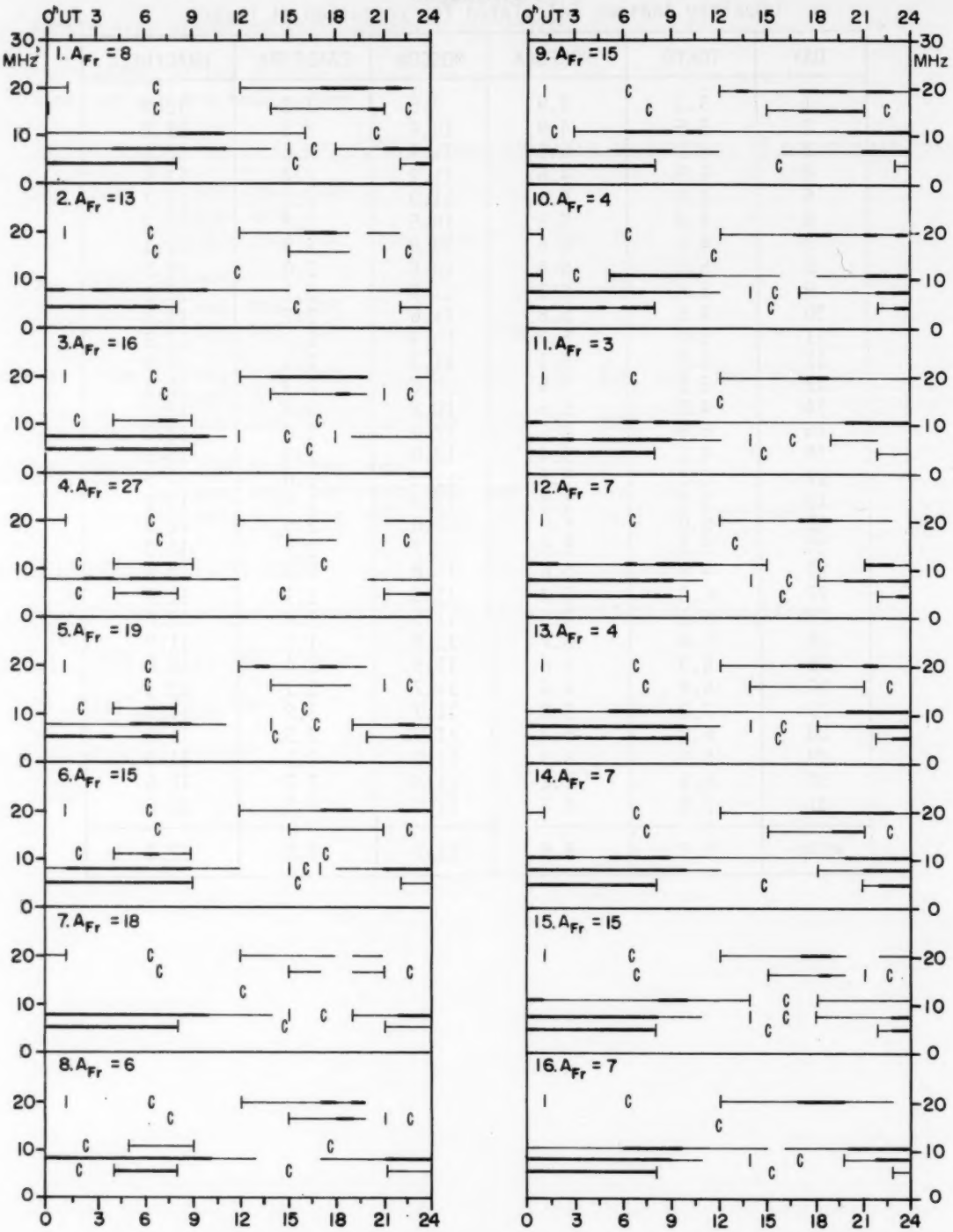
JANUARY 1979

Quality Indices calculated for reception at Luchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	3.3	5.9	9.5	1.8	12.0
2	5.5	4.9	10.4	2.5	11.2
3	6.9	5.6	11.4	2.6	12.1
4	5.3	4.6	11.2	2.4	11.6
5	5.4	5.1	11.0	2.0	11.7
6	4.3	5.5	10.5	1.9	12.2
7	4.5	5.6	10.8	2.3	12.1
8	5.7	5.6	10.5	2.0	12.0
9	5.4	6.3	11.6	2.2	12.1
10	4.6	5.8	11.6	2.2	11.9
11	3.7	5.7	10.9	1.7	11.8
12	5.0	6.1	11.3	2.1	12.3
13	3.1	5.6	10.8	2.3	12.1
14	4.0	5.5	10.8	3.0	12.2
15	5.8	4.6	12.0	2.8	12.3
16	4.5	5.4	12.0	2.3	12.5
17	5.5	5.5	11.1	2.0	12.5
18	5.1	5.8	11.4	1.9	12.6
19	5.0	6.0	12.0	2.4	12.3
20	5.5	5.6	11.7	2.5	12.3
21	4.8	5.6	11.8	2.3	12.2
22	6.5	5.4	11.5	2.1	11.7
23	6.1	4.5	11.5	2.4	12.0
24	5.4	5.7	11.0	1.7	11.9
25	6.3	4.8	11.6	2.4	12.0
26	6.9	4.8	11.7	3.1	12.1
27	7.3	5.0	11.7	3.2	11.7
28	6.8	5.3	11.1	2.5	11.8
29	6.7	5.9	11.0	2.1	11.5
30	6.9	6.2	11.4	2.7	12.6
31	7.5	6.3	11.1	3.3	12.6
MEAN	5.5	5.5	11.2	2.3	12.1

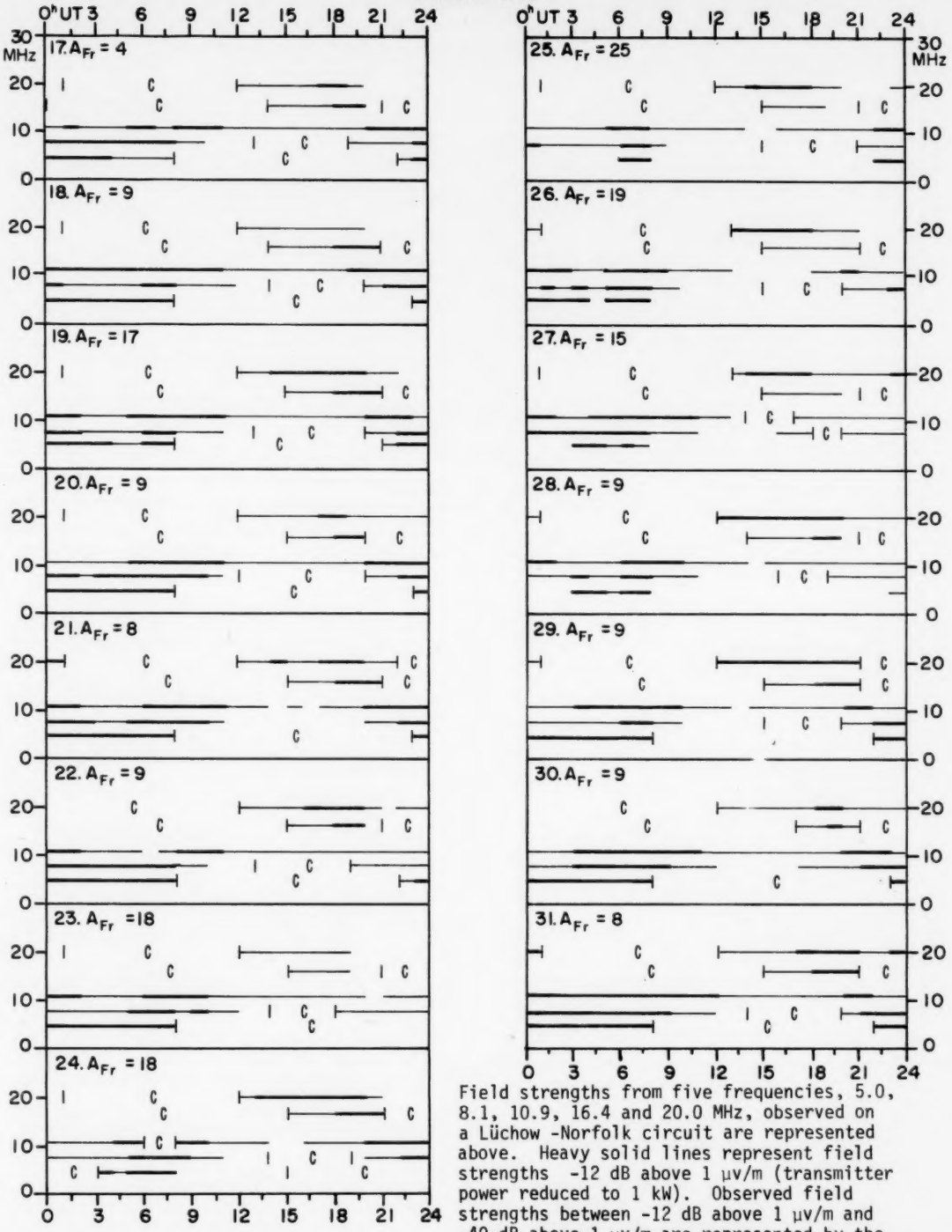
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1979



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow -Norfolk circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

USCOMM - NOAA - ASHEVILLE, NC 4/79/950

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MARCH 1979 Number 415 -- Part II

DEPARTMENT OF COMMERCE
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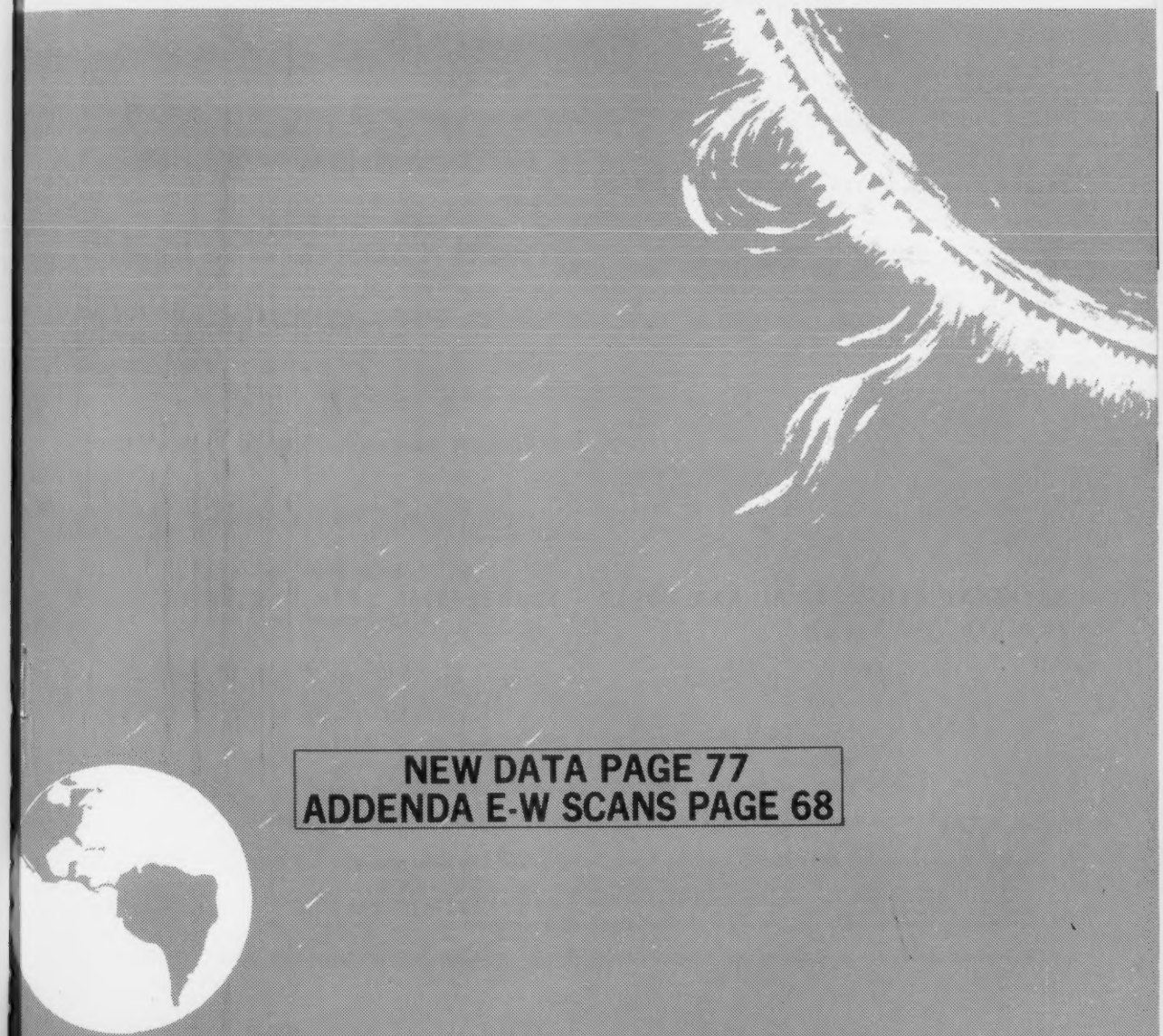
UNITED STATES OF AMERICA

Solar-Geophysical Data comprehensive reports

Data for September 1978 -- August 1978 & Miscellanea

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



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Solar - Geophysical Data

NO. 415 MARCH 1979

Part II (Comprehensive Reports)

DATA FOR
SEPTEMBER 1978
AUGUST 1978

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SOLAR-GEOPHYSICAL DATA

No. 415

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Chart of Variations

Solar-Terrestrial Activity 1977

DETAILED COVERAGE FOR 1978 AND 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

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A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	402A 9	403A 9	404A 9	405A 9	406A 9	407A 9	408A 9	409A 9	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11
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A.17c	Inferred IP Magnetic Field	402A 32	403A 38	404A 32	406A 38	406A 38	407A 38	408A 40	409A 30	410A 40	411A 38	412A 32	413A 40	415A 42	415A 42
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A.18	Interplanetary Electric Field (Pioneer 9)	402A 31	----	----	----	----	----	----	----	----	----	412A 29	----	414A 37	----
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C.1ba	Optical Observations Flares (Standardized Data)	407B 8	408B 8	409B 8	410B 8	411B 8	412B 8	413B 8	414B 8	415B 6					
C.1d	Flare Patrol Observations	402A 15	403A 19	404A 16	405A 16	406A 19	407A 19	408A 18	409A 16	410A 22	411A 19	412A 17	413A 20	414A 23	415A 24
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C.1e	Flare Indices (by day)	407A 21	408B 34	409B 23	410B 28	411B 24	412B 28	413B 34	414B 23	415B 31					
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C.4e	Solar Radio Spectral Obs. (Weissenau)	403A132	404A122	405A139	406A144	407A139	408A138	409A115	410A139	411A135	412A134	413A134	414A142	415A129	
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C.4h	Solar Radio Spectral Obs. (Dwingeloo)	403A132	404A122	405A138	----	----	----	----	----	411A135		413A134	414A142	415A129	
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C.5e	Solar X-ray (SMS/GOES)	402A 26	403A 29	404A 26	----	406A 32	407A 29	408A 33	409A 27	410A 34	411A 31	412A 27	413A 32	----	----
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F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)														
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F.1j	Cosmic Ray Neutron Counts (Tokyo)	403A138	404A138	405A150	406A161	407A155	408A155	409A134	410A152	411A150	412A154	413A149		415A154	
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Notes:

"410A 48" listed under 1978 Aug means that the sunspot drawings for August 1978 were contained in *Solar-Geophysical Data* number 410 - Part I, beginning on page 48.

A = Part I, B = Part II.

---- = no data available.
blank = data not yet received.

SEPTEMBER 1978 DATA

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ACTIVE REGIONS

CARRINGTON ROTATION 1672

(August 23 to September 20, 1978)

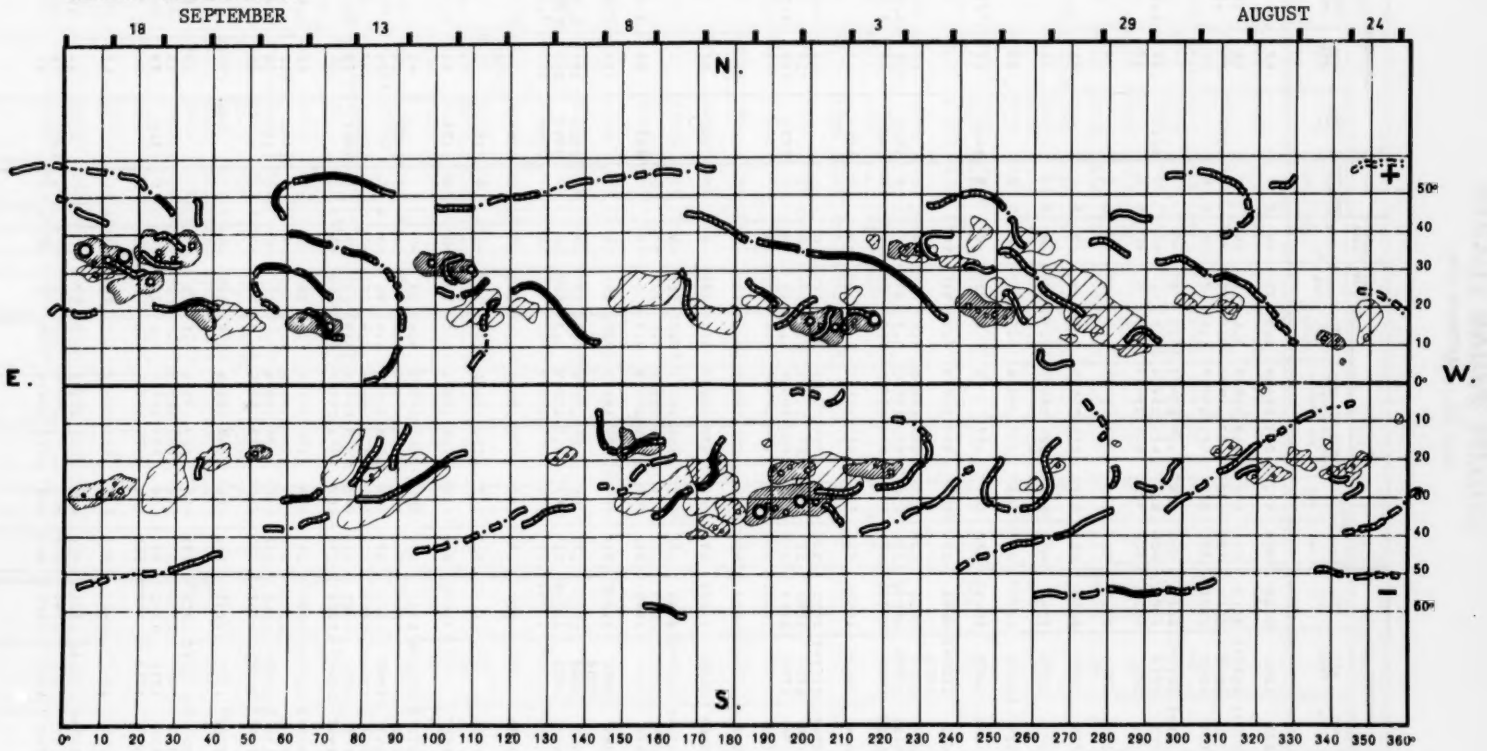
Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP	Spot-less Region	Region No. in Rotation 1671	Activity at West Limb
1	9°S	359°	+3	1	x		disappeared
2	20 S	348	-3	2			decreasing
3	23 S	345	+4	1	x		dispersed
4	12 N	340	-2	3			decreasing
5	15 N	340	-4	1	x		(?)
6	23 S	340	-2	2			increasing
7	19 S	333	+5	1	x		disappeared
8	23 S	324	+5	2			decreasing
9	21 N	313	-3	1	x		decreasing
10	16 S	312	+4	2			decreasing
11	23 N	301	-4	1	x		stable
12	10 N	288	+5	1	x		disappeared
13	17 N	275	>6	1	x		dispersed
14	13 N	270	+2	1	x		disappeared
15	21 S	267	+5	2			decreasing
16	20 N	248	>6	4			decreasing
17	41 N	246	>6	1	x		disappeared
18	34 N	240	>6	1	x		dispersed
19	13 S	232	-4	1	x		stable
20	36 N	230	>6	1	x		disappeared
21	37 N	229	0	3			decreasing
22	37 N	223	0	1	x		decreasing
23	21 S	218	>6	3			decreasing
24	39 N	217	-6	1	x		(?)
25	18 N	214	+2	3			decreasing
26	25 N	212	>6	1	x		disappeared
27	18 N	203	>6	5			decreasing
28	22 S	196	+2	4			decreasing
29	30 S	194	>6	8			decreasing
30	14 S	189	-4	1	x		stable
31	23 N	189	>6	1	x	(23)	decreasing
32	32 S	180	>6	2			decreasing
33	37 S	176	>6	2			decreasing
34	19 N	175	>6	1	x	(26)	dispersed
35	20 S	173	>6	2			decreasing
36	38 S	170	-3	1	x		stable
37	27 S	166	>6	1	x	(27)	decreasing
38	15 S	155	>6	1	x		decreasing
39	26 N	155	>6	1	x	(28)	dispersed
40	18 S	134	+5	2			decreasing
41	21 N	124	>6	1	x		decreasing
42	19 N	114	-1	1	x		decreasing
43	33 N	103	>6	5			decreasing
44	23 S	82	0	2			decreasing
45	17 N	67	>6	4			decreasing
46	17 S	52	0	3			decreasing
47	18 N	45	>6	1	x		disappeared
48	19 S	41	>6	1	x	(45)	decreasing
49	19 N	36	+3	2			decreasing
50	36 N	28	>6	5			decreasing
51	25 S	27	>6	1	x		dispersed
52	27 N	19	>6	4			decreasing
53	35 N	11	>6	8			decreasing
54	28 S	10	>6	3			decreasing
55	30 N	8	>6	2			decreasing

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1672

AUGUST 23 TO SEPTEMBER 20, 1978

MEUDON OBSERVATORY



5
Sep 78

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.		
	SEP																	
813 PALE	01	0037	0052	0110	N20	E03	.227	15496	1.3	33	-N	3	C		42		DE	Y5
GRP68814	01	0100+1	0102+1	0112	S21	E31	.662	15507	3.4	12	-N				50	.7		
VORO	01	0100	0103	0115	S22	E30	.662	15507	3.3	15	-N		C	0103	54	.7	D	
PALE	01	0101	0102	0108	S21	E32	.672	15507	3.4	7	-B	3	C		54		FDE	
GRP68815	01	0211+1	0213+0	0219	N15	W24	.419	15493	30.3	8	-F						E	
VORO	01	0211	0213	0221	N16	W24	.424	15493	30.3	10	-F		C	0213	90	1.0	E	
PALE	01	0212	0213	0217	N15	W25	.434	15493	30.2	5	-F	3	C		32		DE	
816 PALE	01	0235E	0308	0315	N17	E45	.707	15508	4.5	40D	-N	2	C		30		FDE	Y5
817 PALE	01	0255	0255	0259	N20	E02	.224	15496	1.3	4	-N	3	C		21		DE	Y5
818 PALE	01	0323	0324	0340	N20	E02	.224	15496	1.3	17	-N	2	C		75		FDE	Y5
819 PALE	01	0325	0330	0335	N17	E45	.707	15508	4.5	10	-N	2	C		80		FDE	Y5
820 TACH	01	0446E	0448	0508D	S22	E55	.877	0	5.3	22D	-B		C	0448	17	.4	D	Y5
GRP68821	01	0610	0620+3 0629	0641	S34	E53	.905	15509	5.2	31	1N						I	
TEHR	01	0610	0623	0631	S30	E56	.908	15509	5.5	21	-B	1	C		64		F	
CULG	01	0611E	0629U	0650U	S34	E53	.905	15509	5.2	39D	3F		P	0629	600	15.0	I	
ABST	01	0620E	0620	0621D	S34	E50	.889	15509	5.0	1D	1N		P	0620	175	3.7	E	
822 CULG	01	0656	0658U	0659D	S38	E69	.979	15509	6.5	3D	-N		P	0658	20			Y5
GRP68823	01	0734+2	0737+2	0751	S32	E54	.904	15509	5.4	17	1N				150	3.3	EH	
TEHR	01	0734	0737	0751	S30	E54	.837	15509	5.4	17	-B	1	C		127		FDE	
HTPR	01	0736	0739	0748	S32	E52	.892	15509	5.2	12	-N		C	0739	130	1.9	E	
KHAR	01	0736E	0737	0802D	S34	E55	.916	15509	5.4	26D	1N		P	0743	190	4.3	EHT	
824 KANZ	01	0807		0833	N16	E33	.551	15508	3.8	26	-F		C					Y5
825 KHAR	01	0822E	0836	0900D	S37	E68	.975	15509	6.4	38D	-N		P	0841	80		H	Y5
GRP68826	01	0834+1	0837+3	0845	S32	E51	.886	15509	5.2	11	-N						AH	
KANZ	01	0834	0840	0845	S32	E50	.880	15509	5.1	11	-B		C				AH	
HTPR	01	0835	0837	0845	S32	E52	.892	15509	5.3	10	-N		C	0837	80	1.2		
GRP68827	01	0945	0950 0958	1003D	S34	E51	.894	15509	5.2	18	1N				110	2.3	DHJO	
HTPR	01	0945	0950	1003	S32	E51	.886	15509	5.2	18	-B		C	0950	100	1.5		
KHAR	01	0948E	0958	1050D	S34	E52	.900	15509	5.3	62D	2N		P	0957	250	6.0	HOT	
ABST	01	0954E	0954	0954D	S34	E50	.889	15509	5.2		1N		P	0954	105	2.2	DJ	
828 KHAR	01	0959E		1027	S37	E68	.975	15509	6.5	28D	-F		V	0959			D	Y5
829 KHAR	01	1108E		1125D	N22	E02	.258	15496	1.6	17D	-F		V	1110			H	Y5
830 KHAR	01	1110E		1143D	N16	E34	.565	15508	4.0	33D	-F		P	1123	90	1.1	H	Y5
GRP68831	01	1130>9	1241+6	1303	S36	E66	.967	15509	6.4	93	-N				45		H	
KHAR	01	1130		1206D	S37	E66	.969	15509	6.4	36D	1N		P	1138	80			
RAMY	01	1149	1242	1320	S33	E65	.959	15509	6.4	91	-B	4	C		61		HDE	
HTPR	01	1237	1241	1257	S37	E68	.975	15509	6.6	20	-F		C	1241	30	.7		
HCMA	01	1237	1242	1300	S38	E72	.986	15509	6.9	23	-N		C	1242	25	1.0	EH	
TEHR	01	1244E	1247	1305	S30	E62	.940	15509	6.2	21D	-B	2	C		64		FDE	
GRP68832	01	1132+3	1136+1	1206	S32	E49	.874	15509	5.2	34	-N				90	1.6	EH	
KHAR	01	1132E		1206D	S34	E53	.905	15509	5.5	34D	1N		P	1138	100	2.4	EHT	
HTPR	01	1134	1136	1146	S32	E49	.874	15509	5.2	12	-F		C	1136	30	.4		
RAMY	01	1135	1137	1208	S27	E45	.823	15509	4.9	33	-B	4	C		94			
833 TEHR	01	1221E	1222	1231	S30	E54	.897	15509	5.6	10D	-B	2	C		127		F	Y5
GRP68834	01	1310+3	1311+2	1320	S31	E48	.863	15509	5.1	10	-N				30	.6	E	
HTPR	01	1310	1311	1316	S31	E48	.863	15509	5.1	6	-F		C	1311	30	.5	E	
HCMA	01	1310	1312	1340	S32	E50	.880	15509	5.3	30	-N		C	1312	30	.6	E	
RAMY	01	1313	1313	1320	S28	E46	.835	15509	5.0	7	-B	4	C		84		F	
835 RAMY	01	1313	1347	1429	N18	E39	.584	15508	4.2	76	-B	4	C		47			Y5
GRP68836	01	1318+9	1322+1	1335	N18	W05	.205	15496	1.2	17	-F				40	.4	E	
HCMA	01	1318	1322	1343	N18	W06	.213	15496	1.1	25	-F		C	1322	50	.5	E	
RAMY	01	1323	1323	1326	N19	W04	.215	15496	1.3	3	-N	4	C		31			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE - SEP	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
837 MCMA	01	1404	1408	1419	S32	E50	.880	15509	5.3	15	-F		C	1408	40	.8	E Y5
838 RAMY	01	1430	1430	1437	N18	E35	.584	15508	4.2	7	-B	4	C		24		Y5
GRP68839	01	1435+2	1441+0	1503	N21	E57	.836	15512	5.9	28	-F				40	.8	EH
HTPR	01	1435	1441	1500	N20	E58	.844	15512	6.0	25	-F		C	1441	40	.7	E
MCMA	01	1437	1441	1505	N22	E57	.837	15512	5.9	28	-N		C	1441	40	.7	EH
840 RAMY	01	1452	1458	1523	N18	E34	.571	15508	4.2	31	-N	4	C		23		Y5
841 MCMA	01	1518	1519	1525	S32	E39	.809	15509	4.6	7	-F		C	1519	30	.5	E Y5
GRP68842	01	1627+3	1632+2	1649	S32	E47	.862	15509	5.2	22	-N						E
RAMY	01	1627	1632	1649D	S28	E44	.821	15509	5.0	22D	-B	4	C		119		DE
MCMA	01	1628E		1720D	S33	E48	.873	15509	5.3	52D	-N		C	1633	60	1.2	E
HTPR	01	1630	1634	1644	S32	E47	.862	15509	5.2	14	-F		C	1634	30	.4	E
GRP68843	01	1708+3	1712+2	1725	S35	E64	.959	15509	6.5	17	-B				45		EH
MCMA	01	1703	1714	1725	S39	E69	.980	15509	6.9	17	-B		C	1714	40	1.2	EH
RAMY	01	1711	1712	1725D	S32	E60	.935	15509	6.2	14D	-B	4	C		45		DE H
GRP68844	01	1722+7	1723 1734	1748	N16	E29	.495	15508	3.9	26	-F						EH
MCMA	01	1722	1723	1755	N15	E30	.506	15508	4.0	33	-N		C	1723	30	.4	EH
HOLL	01	1729	1734	1740	N17	E28	.485	15508	3.8	11	-F	3	C				
845 MCMA	01	1807	1812	1825	S39	E68	.978	15509	6.9	18	-N		C	1812	40	1.2	E Y5
846 MCMA	01	1836	1837	1841	N15	E41	.655	15508	4.9	5	-N		C	1837	50	.7	DHV Y5
847 HOLL	01	1839	1839	1844	N17	E27	.471	15508	3.8	5	-F	3	C				Y5
848 HOLL	01	1842	1850	1856	S30	E43	.825	15509	5.0	14	-N	3	C		30		Y5
849 MCMA	01	2011	2013	2017	N15	E41	.655	15508	4.9	6	-N		C	2013	30	.4	D Y5
850 PALE	01	2022E	2034U	2042D	S30	E43	.825	15509	5.1	20D	-N	3	C		21		FDE Y5
	01	2101	2110	NO FLARE PATROL													
GRP68851	01	2144>9	2154 2225	2300	S31	E43	.830	15509	5.1	76	? N						
PALE	01 IMP.S	2144 IMP.2	2154	2259	S30	E42	.817	15509	5.1	75	B	3	C		52		FDE
CULG	01	2223	2225	2300	S33	E44	.848	15509	5.2	37	2N		C	2225	350	6.7	
GRP68852	02	0004>9	0011 0122+3	0154	S31	E43	.830	15509	5.2	110	-B				110	1.9	FU
PALE	02	0004	0125	0158	S30	E42	.818	15509	5.2	114	-N	3	C		122		U F
PALE	02	0004	0157	0158	S30	E42	.818	15509	5.2	114	-N	3	C		122		U F
PALE	02	0004	0011	0158	S30	E42	.818	15509	5.2	114	1B	3	C		154		U F
CULG	02	0108	0122	0150	S33	E45	.854	15509	5.4	42	-N		C	0122	100	1.9	
853 CULG	02 IMP.1	0254E NO	0300 PALE1	0328 MITK1	S19	E80	.993	15521	8.1	34D	? N		C	0300	120		Y5
GRP68854	02	0459>9	0533+6	0559	S34	E51	.894	15509	6.0	60	? N						DV
CULG	02 IMP.2	0459 IMP.S	0539	0611	S36	E51	.902	15509	6.0	72	N		C	0539	320	7.5	V
TACH	02	0529	0533	0546	S32	E52	.892	15509	6.1	17	-N		C	0533	62	1.3	D
GRP68855	02	0533>9	0550+9	0621	S32	E43	.836	15509	5.5	48	2B				320	5.6	EJKU
ABST	02	0533	0555	0620D	S33	E45	.854	15509	5.6	47D	2B		P	0555	297	6.4	FJK
TEHR	02	0546E	0550	0614	S29	E40	.797	15509	5.2	28D	-B	2	C		127		FDE
CULG	02	0547	0558	0621	S33	E42	.835	15509	5.4	34	2N		C	0558	300	5.4	
MITK	02	0551	0559	0643	S33	E44	.848	15509	5.5	52	2B		C	0559	380	7.2	E
TACH	02	0551	0556	0616	S32	E43	.836	15509	5.5	25	2B		C	0556	287	5.2	EJU
BUCA	02	0557E		0626	S31	E42	.823	15509	5.4	29D	2N		P	0600	429	7.9	BE
856 CULG	02	0650	0655	0726D	N12	E21	.362	15508	3.9	36D	-N		C	0655	70	.8	F Y5
857 ISTA	02	0740E		0757	N18	E23	.421	15508	4.0	17D	-N						E Y5
858 ISTA	02	0740E		0800	S30	E43	.825	15509	5.5	20D	-F	*					Z Y5
859 ISTA	02	0820E		0824	S30	E39	.796	15509	5.3	4D	-F						E Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP									MIN.								
860 ISTA	02	0822E		0840D	N17	E25	.443	15508	4.2	18D	-N						D	Y5
861 HTPR	02	1030	1036	1043	S32	E38	.803	15509	5.3	13	-F		C	1036	40	.5	K	Y5
GRP68862	02	1045+2	1048+5 1059	1113	S31	E39	.803	15509	5.4	28	1N				130	2.1	J	
HTPR	02	1045	1049	1110	S32	E38	.803	15509	5.3	25	-F		C	1049	60	.8	E	
ABST	02	1046E	1048	1110	S33	E43	.841	15509	5.7	24D	1N		P	1048	174	3.7	EJ	
TEHR	02	1047	1053	1120	S29	E40	.797	15509	5.4	33	-B	2	C		127		F	
RAMY	02	1056	1059	1115D	S30	E38	.789	15509	5.3	19D	1B	3	C		211		F	
GRP68863	02	1131+3	1134+5 1146	1212	S30	E37	.782	15509	5.3	41	1N							
TEHR	02	1131E	1134	1145D	S29	E40	.797	15509	5.5	14D	1B	2	C		159		F	
HTPR	02	1134	1139	1202	S31	E35	.775	15509	5.1	28	-F		C	1139	50	.6	E	
RAMY	02	1144E	1146	1222	S30	E37	.782	15509	5.3	38D	1B	4	C		226		DE	
864 RAMY	02	1147	1150	1204	N20	W17	.356	15496	1.2	17	-B	4	C		62			Y5
865 MCMA	02 IMP-1	1204E NO	HTPR2	1225D CATA1	S38	E52	.915	15509	6.4	21D	?F		C	1204	100	2.4	BE	Y5
866 MCMA	02	1204E	1209	1220D	N16	E18	.337	15508	3.9	16D	-F		C	1209	60	.7	E	Y5
867 RAMY	02	1220	1223	1230	N18	E25	.448	15508	4.4	10	-B	4	C		23			Y5
GRP68868	02	1226+4	1229+3	1242	S37	E53	.916	15509	6.5	16	-N				30	.7	E	
MCMA	02	1226	1229	1250	S38	E56	.933	15509	6.7	24	-N		C	1229	40	1.0	E	
RAMY	02	1229	1230	1242	S32	E53	.898	15509	6.5	13	-B	4	C		37			
HTPR	02	1230	1232	1239	S37	E53	.916	15509	6.5	9	-F		C	1232	20	.3		
869 TEHR	02	1246E	1250	1255D	S29	E40	.797	15509	5.5	9D	-B	2	V		127		FDE	Y5
GRP68870	02	1247+7	1253+2	1306	N13	E19	.335	15508	4.0	19	-B				120	1.3	EV	
MCMA	02	1247	1254	1307	N13	E19	.335	15508	4.0	20	-B		C	1254	100	1.1	EV	
TEHR	02	1249	1253	1305	N15	E23	.404	15508	4.3	16	-B	2	C		127			
HTPR	02	1254	1255	1306	N13	E18	.320	15508	3.9	12	-B		C	1255	130	1.3		
GRP68871	02	1258>9	1308+4	1327	S31	E39	.803	15509	5.5	29	-B				80	1.3	E	
RAMY	02	1259	1308	1415	S30	E38	.789	15509	5.4	77	1B	4	C		184			
TEHR	02	1305E	1308	1314	S30	E40	.803	15509	5.5	9D	-B	2	C		95			
MCMA	02	1305	1310	1330	S34	E41	.835	15509	5.6	25	-B		C	1310	50	.9	E	
HTPR	02	1309	1312	1323	S32	E35	.782	15509	5.2	14	-N		C	1312	60	.7	E	
872 MCMA	02	1354E	1358	1408	S30	E90	1.002	0	9.3	14D	-F		C	1358			A	Y5
GRP68873	02	1415+8	1424+2	1551	S32	E36	.789	15509	5.3	96	-B				60	1.0	EK	
RAMY	02	1415	1425	1554	S30	E37	.782	15509	5.4	99	1B	*	C		283		DE	
MCMA	02	1420	1424	1600	S35	E36	.811	15509	5.3	100	-B	*	C	1424	60	1.0	E	
KANZ	02	1420		1449D	S32	E36	.789	15509	5.3	29D	-B	*	C				E	
HTPR	02	1423	1426	1500	S31	E35	.775	15509	5.2	37	-N	*	C	1426	60	.7	EK	
KANZ	02	1456E		1548	S33	E38	.809	15509	5.5	52D	-N	*	C					
874 MCMA	02	1431	1432	1435	N18	E28	.490	15508	4.7	4	-F		C	1432	30	.4		Y5
GRP68875	02	1450+1	1451+1	1459	N14	E24	.415	15508	4.4	9	-F				30	.3	D	
MCMA	02	1450	1452	1500D	N12	E23	.393	15508	4.3	10D	-F		C	1452	30	.3	D	
RAMY	02	1451	1451	1458	N16	E26	.453	15508	4.6	7	-N	4	C		34			
GRP68876	02	1513+2	1515+1	1530	N14	E20	.355	15508	4.1	17	-N						E	
MCMA	02	1513	1516	1539	N14	E20	.355	15508	4.1	26	-N		C	1516	50	.5	E	
KANZ	02	1515	1515	1521	N15	E20	.360	15508	4.1	6	-N		C				E	
GRP68877	02	1600>9	1620	1650	N17	W46	.718	15493	30.2	50	-F						E	
MCMA	02	1600	1620	1650	N17	W47	.730	15493	30.1	50	-F		C	1620	50	.8	E	
KANZ	02	1620		1623D	N17	W46	.718	15493	30.2	3D	-F		C					
GRP68878	02	1644+2	1648	1730	S31	E25	.708	15509	4.6	46	-F				35	.5		
MCMA	02	1644	1648	1730	S32	E23	.706	15509	4.4	46	-N	*	C	1648	35	.5	D	
HTPR	02	1646		1715D	S30	E27	.711	15509	4.7	29D	-F	*	C	1650	30	.3	E	
GRP68879	02	1644+4	1652+6	1705	N13	E22	.381	15508	4.3	21	-N				30	.3	E	
MCMA	02	1644	1654	1720	N12	E22	.378	15508	4.3	36	-N		C	1654	40	.4	E	
HTPR	02	1647	1658	1705	N13	E16	.289	15508	3.9	18	-F		C	1658	40	.5	E	
RAMY	02	1648	1652	1700	N16	E25	.438	15508	4.6	12	-N	4	C		24			
	02	1730	1748	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP68880	02	1810+2	1815+0	1840	S31	E34	.768	15509	5.3	30	-N				60	.9		
MCMA	02	1810E	1815	1827	S33	E36	.796	15509	5.5	17D	-N		C	1815	60	1.0	E	
PALE	02	1812	1815	1853	S30	E32	.746	15509	5.2	41	-B	3	C		66		FDE	
881 MCMA	02	1832		1905	N14	E13	.250	15508	3.7	33	-N		C	1851	60	.6	E	Y5
GRP68882	02	1902+0	1906+0	1920	S31	E33	.761	15509	5.3	18	-N				60	.9	EU	
PALE	02	1902	1906	1925	S30	E32	.746	15509	5.2	23	-B	3	C		66		U	
MCMA	02	1902	1906	1915	S33	E34	.783	15509	5.3	13	-N		C	1906	50	.8	E	
883 PALE	02	1928	1929	1940	S30	E32	.746	15509	5.2	12	-N	3	C		29		FDE	Y5
884 PALE	02	1944	1944	1949	S30	E32	.746	15509	5.2	5	-N	3	C		27		DE	Y5
GRP68885	02	2008+0	2010+2	2019	S30	E31	.739	15509	5.2	11	-B				20	.3		
PALE	02	1952	2011	2017	S30	E31	.739	15509	5.2	25	-B	3	C		27		DE	
HOLL	02	2008	2012	2019	S30	E30	.732	15509	5.1	11	-B	3	C		17		FDE	
RAMY	02	2008	2010	2042	S30	E34	.760	15509	5.4	34	-B	3	C		24			
GRP68886	02	2015+1	2019+1	2028	S33	E50	.884	15509	6.6	10	-N				20	.4		
HOLL	02	2018	2020	2032	S33	E50	.884	15509	6.6	14	-N	3	C		18		FDE	
PALE	02	2019	2019	2028	S34	E50	.889	15509	6.6	9	-N	3	C		14		F	
RAMY	02	2019	2019	2021	S33	E47	.866	15509	6.4	2	-N	3	C		16			
GRP68887	02	2020+0	2020+1	2026	N20	W21	.407	15496	1.3	6	-B				110	1.2	U	
RAMY	02	2020	2021	2026	N19	W20	.386	15496	1.3	6	-B	3	C		144			
HOLL	02	2020	2021	2025	N22	W22	.436	15496	1.2	5	-B	3	C		112		FDE	
PALE	02	2020	2020	2030	N20	W21	.407	15496	1.3	10	-N	3	C		89		U	
GRP68888	02	2034+1	2037 2047+2	2203	S30	E31	.739	15509	5.2	89	-B				130	1.9		
RAMY	02	2008	2037	2042	S30	E34	.760	15509	5.4	34	-N	*	C		30			
PALE	02	2034	2047	2211	S30	E31	.739	15509	5.2	97	-B	*	C		146		DE F	
HOLL	02	2035	2049	2203	S30	E29	.725	15509	5.0	88	-B	*	C		118		FDE	
889 PALE	02	2347	2355	0047	S30	E29	.725	15509	5.2	60	-B	3	C		140		DE F	Y5
GRP68890	03	0207+6	0215+2	0249	S32	E41	.823	15509	6.2	42	1N				240	4.1		
CULG	03	0207	0217U	0239D	S33	E39	.816	15509	6.0	32D	1N		P	0217	240	4.3		
PALE	03	0213	0215	0249	S32	E44	.843	15509	6.4	36	1B	3	C		242		DE F	
891 TACH	03	0523E	0530	0545	S32	E30	.749	15509	5.5	22D	1N		C	0530	132	2.0	EU	Y5
GRP68892	03	0707>9	0734 0741+8	0754	S31	E27	.721	15509	5.3	47	-N				90	1.3	DJKU	
KANZ	03	0707	0741	0749	S31	E28	.728	15509	5.4	42	-N		C				D	
ABST	03	0731	0734	0737	S35	E25	.747	15509	5.2	6	-F		C	0734	87	1.3	DJ	
ABST	03	0734	0745	0827	S33	E30	.758	15509	5.6	53	-F		C	0745	87	1.4	DJK	
TEHR	03	0745	0749	0754	S31	E26	.715	15509	5.3	9	-N	2	C		95		UDE	
893 ABST	03	0802	0804	0808	S35	E25	.747	15509	5.2	6	-F		C	0804	105	1.5	DJ	Y5
894 ABST	03	0805	0811	0818	S14	E67	.938	15521	8.4	10	-F		C	0811	87		DJ	Y5
895 KANZ	03	0843	0843	0851	S33	E23	.717	15509	5.1	8	-B		C				D	Y5
GRP68896	03	0929+6	0931+7	1007	S32	E25	.718	15509	5.3	38	-N						EJU	
ABST	03	0929	0931	1013D	S33	E25	.728	15509	5.3	44D	1F		P	0931	192	2.8	EJU	
KANZ	03	0931	0936	1000	S31	E25	.708	15509	5.3	29	-N		C					
TEHR	03	0935	0938	0946	S31	E24	.702	15509	5.2	11	-N	2	C		95		UDE	
KHAR	03	0947E		1020D	S33	E28	.746	15509	5.5	33D	1F		V					
897 RAMY	03	1604	1604	1626	S12	E59	.881	15521	8.1	22	-N	4	C		14		FDE	Y5
898 RAMY	03	1604	1605	1622	S30	E23	.686	15509	5.4	18	-B	4	C		37		FDE	Y5
899 PALE	03	1655E	1655U	1701	S32	E24	.712	15509	5.5	6D	-B	3	C		31		F	Y5
	03	1729	1737	NO FLARE PATROL														
	03	1745	1834	NO FLARE PATROL														
900 PALE	03	1746	1748	1804	S30	E21	.673	15509	5.3	18	-B	3	C		44		FDE	Y5
901 PALE	03	1806	1807	1812	S30	E21	.673	15509	5.3	6	-B	3	C		29		FDE	Y5
902 PALE	03	1822E	1823	1825	N16	E11	.240	15508	4.6	3D	-B	3	C		29		F	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP68903	03	1828>9	1838 1850	1913	S30	E21	.673	15509	5.3	45	-B				70	.9		
PALE	03	1828	1838	1916D	S30	E21	.673	15509	5.3	480	-B	3	C		68		FDE	
HOLL	03	1838	1850	1900	S30	E20	.668	15509	5.3	22	-B	3	C		48		F	
HCMA	03	1840E		18430	S33	E25	.728	15509	5.7	30	-N		P	1841	80	1.2	E	
HOLL	03	1906	1906	1910	S30	E20	.668	15509	5.3	4	-N	3	C		20			
GRP68904	03	1921	1926	1948D	S30	E20	.668	15509	5.3	27	-B				100	1.3	U	
PALE	03	1828	2017	2036	S30	E20	.668	15509	5.3	128	-B	3	C		120		FDE	
HOLL	03	1921	1926	1948	S30	E19	.662	15509	5.2	27	-B	3	C		88		U F	
HCMA	03	1925E		19320	S33	E24	.722	15509	5.6	70	-B		C	1925	120	1.7	E	
	03	2006	2025	NO FLARE PATROL														
	03	0401	0409	NO FLARE PATROL														
	03	0420	0427	NO FLARE PATROL														
	03	0430	0500	NO FLARE PATROL														
	03	0600	0603	NO FLARE PATROL														
	03	0607	0610	NO FLARE PATROL														
905 PALE	03	2039	2041	2048	S30	E20	.668	15509	5.4	9	-B	3	C		61		FDE	Y5
GRP68906	03	2158+1	2158+2	2211	S20	W07	.471	15507	3.4	13	-N				35	.4	F	
PALE	03	2158	2158	2210	S21	W06	.482	15507	3.5	12	-N	3	C		25		F	
HOLL	03	2159	2200	2211	S20	W08	.475	15507	3.3	12	-N	3	C		35			
907 PALE	03	2223	2226U	2227D	S30	E18	.657	15509	5.3	40	-B	3	C		56		DE F	Y5
908 CULG	03	2231	2244	2305	S19	W24	.578	0	2.1	34	-F		C	2244	80	1.0	SL	Y5
909 CULG	03	2255	2259	2312	N30	E90	.998	0	10.7	17	-N		C	2259	40			Y5
910 CULG	03	2315	2324	2338	N31	E90	.998	0	10.7	23	-N		C	2324	40		T	Y5
GRP68911	03	2318+8	2327	2330D	S30	E17	.651	15509	5.2	12	-B						F	
PALE	03	2318	2403	0020	S30	E18	.657	15509	5.3	62	-B	3	C		78		F	
HOLL	03	2326	2327	2330	S30	E17	.651	15509	5.3	4	-B	3	C		18			
912 CULG	03 IMP.1 NO 3 HOLL1	2348	2352	0008	N31	E90	.998	0	10.7	20	?N		C	2352	60		T	Y5
913 PALE	03	2348	2358U	0020	S36	E35	.812	15509	6.6	32	-B	3	C		150		DE F	Y5
914 CULG	04	0018	0033	0100	N34	W45	.758	0	31.6	42	-F		C	0033	50	.8		Y5
915 CULG	04	0035	0047	0120	N15	W18	.330	0	2.7	45	-F		C	0047	100	1.1		Y5
916 CULG	04	0106	0113	0157	S15	E40	.713	0	7.0	51	-N		C	0113	20	.3		Y5
917 CULG	04	0126	0129	0202	S35	W03	.673	0	3.8	36	-N		C	0129	120	1.6		Y5
918 PALE	04	0149	0154	0209	S30	E17	.651	15509	5.4	20	-B	3	C		88		DE F	Y5
919 PALE	04	0259	0308	0324	S30	E16	.646	15509	5.3	25	-B	3	C		42		DE F	Y5
920 CULG	04	0408	0424	0435	N21	W22	.428	0	2.5	27	-N	*	C	0424	40	.4		Y5
921 PALE	04	0408	0408	0416D	S30	E16	.646	15509	5.4	80	-N	3	C		69		DE F	Y5
GRP68922	04	0420E	0440+5	0502	S30	E15	.642	15509	5.3	42	-B						U	
TEHR	04	0420E	0440	0507	S29	E15	.629	15509	5.3	470	-B	2	C		127		U F	
TACH	04	0440E	0445	0456	S32	E16	.670	15509	5.4	160	-B		C	0445	53	.7	E	
923 CULG	04	0511	0514	0533	N32	E90	.998	0	11.0	22	-B		C	0514	40		T	Y5
GRP68924	04	0800+2	0813	0819	S31	E14	.650	15509	5.4	19	1F							
BUCA	04	0800	0813	0819	S31	E15	.654	15509	5.5	19	1F		C	0813	214	3.0		
KANZ	04	0802	0809	0809D	S31	E14	.650	15509	5.4	70	-N		C					

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP68925	04	0812+8	0823+4	0927	S15	E52	.830	15521	8.2	75	2N		C		340	6.0	EGHOUV	
BUCA	04	0812	0827	0920D	S15	E53	.839	15521	8.3	68D	2N		C	0827	429	8.2	GV	
TEHR	04	0820	0823	0903	S14	E53	.836	15521	8.3	43	1B	2	C		190		U F	
ZURI	04	0822E	0825	0926	S14	E52	.827	15521	8.2	64D	2B		P	0825	340	6.2		
WEND	04	0825E		0833D	S14	E51	.818	15521	8.2	8D	1N		V		300	5.0	EG	
KANZ	04	0836E		0930	S15	E51	.821	15521	8.2	54D	1B		C				GH	
KHAR	04	0845		1020D	S16	E52	.834	15521	8.3	95D	2N		P	0900	410	7.9	CEO	
HERS	04	0900E	0900	0933	S16	E50	.816	15521	8.1	33D	1N		P	0900	113	2.3	U	
926 KANZ	04	0911	0911	0916	N14	W05	.145	15508	4.0	5	-N		C				D	Y5
927 ZURI	04	0923	0924	0927	S31	E10	.635	15509	5.1	4	-N		C	0924	50	.7		Y5
GRP68928	04	0951E	0956	1007D	S16	E54	.851	15521	8.5	16	-F						J	
ABST	04	0951E	0956	1007D	S17	E52	.837	15521	8.3	16D	-F		P	0956	44	.8	DJ	
ABST	04	0951E	0956	1007D	S15	E56	.864	15521	8.6	16D	-F		P	0956	44	.8	DJ	
929 KHAR	04	1005		1015D	S22	E75	.982	15524	10.0	10D	-F		V	1005			D	Y5
GRP68930	04	1014+1	1015+1	1021	S30	E09	.619	15509	5.1	7	-N						DH	
ZURI	04	1014	1015	1020	S31	E10	.635	15509	5.2	6	-N		C	1015	50	.7		
KHAR	04	1015	1016	1022D	S30	E08	.616	15509	5.0	7D	-N		P	1016			DH	
931 ZURI	04	1145	1149	1203	S29	E11	.612	15509	5.3	18	-F		C	1149	70	.9		Y5
932 RAMY	04	1221	1221	1242	N36	W21	.568	15522	2.9	21	-N	3	C		22			Y5
GRP68933	04	1250+1	1252+2	1313	S31	E10	.635	15509	5.3	23	-N				35	.5	E	
MCMA	04	1250	1254	1316	S32	E08	.642	15509	5.1	26	-N		C	1254	40	.5	E	
MEUD	04	1250	1253	1312	S31	E10	.635	15509	5.3	22	-F		C				E	
KANZ	04	1250	1253	1313	S31	E10	.635	15509	5.3	23	-N		C				D	
RAMY	04	1251	1252	1313	S30	E11	.625	15509	5.4	22	-B	3	C		25			
GRP68934	04	1340+4	1343+2 1351	1358	N36	W21	.568	15522	3.0	18	-F				50	.6	E	
MCMA	04	1340	1345	1415	N37	W22	.586	15522	2.9	35	-F		C	1345	50	.6	E	
KANZ	04	1340	1343	1349	N37	W20	.572	15522	3.1	9	-F		C					
ZURI	04	1341	1345	1351	N36	W21	.568	15522	3.0	10	-F		C	1345	50	.6		
HOLL	04	1344	1351	1405	N36	W23	.583	15522	2.8	21	-N	3	C		38			
GRP68935	04	1343+0	1343+1	1346	N16	E04	.167	15508	4.9	3	-F							
ZURI	04	1343	1343	1345	N16	E04	.167	15508	4.9	2	-F		C	1343	50	.5		
KANZ	04	1343	1344	1346	N17	E04	.183	15508	4.9	3	-F		C					
936 MCMA	04	1355	1405	1420	S32	W02	.633	15509	4.4	25	-F		C	1405	35	.5	E	Y5
GRP68937	04	1407+2	1412+1	1423	N14	W11	.221	15508	3.8	16	-F				45	.5	EL	
KANZ	04	1407	1413	1419	N16	W12	.253	15508	3.7	12	-F		C					
MCMA	04	1408	1412	1430	N14	W11	.221	15508	3.8	22	-F		C	1412	30	.3	EL	
ZURI	04	1409	1413	1423	N13	W08	.170	15508	4.0	14	-F		C	1413	60	.6		
938 ZURI	04	1427	1429	1429	S31	E08	.629	15509	5.2	2	-F		C	1429	60	.8		Y5
GRP68939	04	1447+2	1450+1 1501	1507	N15	W10	.217	15508	3.9	20	-N				90	.9	L	
MCMA	04	1436	1450	1515	N16	W13	.266	15508	3.6	39	-N		C	1450	75	.8	EL	
ZURI	04	1447	1451	1507	N15	W11	.230	15508	3.8	20	-F		C	1451	130	1.4		
RAMY	04	1449	1450	1457	N16	W10	.227	15508	3.9	8	-N	3	C		62			
MEUD	04	1459	1501	1507	N12	W09	.175	15508	3.9	8	-F		C				D	
940 ZURI	04	1531	1541	1545D	N20	W15	.331	15508	3.5	14D	-F		P	1541	80	.9		Y5
GRP68941	04	1558+2	1611 1619+1	1709	N16	W12	.253	15508	3.8	71	-B				170	1.8	FHUZ	
HOLL	04	1558	1619	1702	N16	W12	.253	15508	3.8	64	1B	3	C		194		F	
MCMA	04	1558	1620	1712D	N16	W13	.266	15508	3.7	74D	-B		C	1620	150	1.5	EHU	
RAMY	04	1600	1611	1709	N16	W11	.240	15508	3.8	69	-B	3	C		162		Z F	
942 PALE	04	1720	1720	1728	S18	E69	.954	15524	9.9	8	-N	3	C		19		F	Y5
	04	1906	1920	NO FLARE PATROL														
943 PALE	04	1907	1910	1917	S30	E08	.616	15509	5.4	10	-N	3	C		29		F	Y5
944 PALE	04	1943	2035	2039	N32	E90	.998	15525	11.6	56	-N	3	C		31		F	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP68945	04	2038+1	2043	2051	N36	W26	.606	15522	2.9	13	-N				40	.5	F
PALE	04	2038	2043	2051	N37	W26	.616	15522	2.9	13	-N	3	C		37		F
HOLL	04	2039	2042U	2042D	N36	W26	.606	15522	2.9	3D	-N	3	C		37		F
	04	2042	2043	NO FLARE PATROL													
	04	2103	2106	NO FLARE PATROL													
GRP68946	04	2318>9	0003+1	0017	S3D	E17	.651	15509	6.2	59	-B						FU
PALE	04	2314	2403	0020	S3D	E18	.657	15509	6.3	62	-B	*	C		78		F
HOLL	04	2351	2404	0014	S3D	E17	.651	15509	6.3	23	-B	*	C		32		U F
947 VORO	04	2324	2326	233D	N33	E9D	.998	15525	11.7	6	-F		C	2326	45		D Y5
948 HOLL	04	2347	2359	0021	S33	E35	.79D	15518	7.6	34	1B	*	C		181		U F Y5
949 VORO	04	2352	2355	2359	N33	E9D	.998	15525	11.7	7	1F		C	2355	108		D Y5
95D TACH	05	0345E		0405	N22	E9D	.999	D	11.9	2DD	1F		V	0345	354		E Y5
951 TACH	05	0515	0521	0538D	N22	E9D	.999	D	12.D	23D	2F		C	0521	203		E Y5
GRP68952	05	0720+4	0729	0734	N16	W04	.167	15508	5.D	14	-N				6D	.6	DH
BUCA	05	0720		0729	N16	W05	.174	15508	4.9	9	-F		C	0725	64	.7	D
TEHR	05	0724	0729	0739	N17	W04	.182	15508	5.D	15	-B	2	C		63		H
953 KANZ	05	0733E	0736	0742	N33	E9D	.998	15525	12.1	9D	-B		C				Y5
GRP68954	05	0902	0904+1	0925	N33	E87	.994	15525	11.9	23	-B						H
KANZ	05	0902	0905	0910	N33	E9D	.998	15525	12.1	8	-B		C				
HURB	05	0903E	0904	0930	N35	E82	.983	15525	11.5	27D	1B		V				
KHAR	05	0910E		0925D	N27	E87	.995	15525	11.9	15D	-N		P	0920	120		H
955 KANZ	05	1003	1008	1015	N16	W07	.193	15508	4.9	12	-N		C				Y5
GRP68956	05	1049+0	1049+1	1057	S2D	W02	.459	15526	5.3	9	-N						
HURB	05	1048E	1049	1051D	S21	W05	.480	15526	5.1	3D	-N		V				
RAMY	05	1048	1050	1057	S2D	E01	.458	15526	5.5	9	-B	2	C		57		
GRP68957	05	1053	1112+3	1125	N33	E85	.99D	15525	11.8	32	-N						
RAMY	05	1053	1112	1134D	N35	E85	.99D	15525	11.8	41D	-N	3	C				
HURB	05	1110E	1114	1125	N33	E82	.983	15525	11.6	15D	1B		V				
KANZ	05	1113E	1115	1119	N32	E89	.997	15525	12.1	6D	-N		C				
GRP68958	05	1225	1233+1	1246	N32	E85	.99D	15525	11.9	21	-N						D
RAMY	05	1225	1234	1246	N35	E85	.99D	15525	11.9	21	-N	4	C				
LVOV	05	1233E	1233	1240D	N3D	E85	.99D	15525	11.9	7D	1F		P	1233	15D		8D
959 RAMY	05	1336	1342	1346	N35	W38	.702	15522	2.7	1D	-N	4	C		19		Y5
GRP68960	05	1350+0	1351+2	1404	N18	W56	.824	15496	1.4	14	1B				14D	2.6	
RAMY	05	1350	1353	1406	N19	W55	.815	15496	1.5	16	-B	4	C		148		
HOLL	05	1350	1353	1401	N18	W56	.824	15496	1.4	11	-B	2	C		131		F
HURB	05	1351E	1351	1356D	N15	W65	.899	15496	31.7	5D	-N		V				D
GRP68961	05	1413	1414	1422	S3D	W04	.608	15509	5.3	9	-N				4D	.5	
HOLL	05	1413	1414	1416	S3D	W03	.607	15509	5.4	3	-N	2	C		25		
ZURI	05	1415E	1415	1427	S3D	W05	.609	15509	5.2	12D	-F		P	1415	5D	.7	
962 RAMY	05	1431	1432	1437	N35	W38	.702	15522	2.8	6	-N	4	C		17		Y5
963 RAMY	05	1451	1452	1459	S22	W03	.491	15526	5.4	8	-B	4	C		21		Y5
964 HCMA	05	1525E		1529D	S35	E0D	.672	15509	5.6	4D	-N		C	1528	4D	.5	E Y5
965 RAMY	05	1538	1539	1549	N35	W39	.71D	15522	2.7	11	-B	4	C		25		Y5
966 RAMY	05	1538	1541	1543	N35	E83	.985	15525	11.9	5	-N	4	C				Y5
967 RAMY	05	1630	1631	1637	N35	E83	.985	15525	11.9	7	-B	4	C		17		Y5
968 HOLL	05	1635	1635	1645	N36	W36	.69D	15522	3.D	1D	-N	3	C		19		Y5
969 RAMY	05	1641	1643	1658	N19	W57	.834	15496	1.4	17	-N	4	C		18		Y5
97D HOLL	05	1718	1718	1732	N36	W37	.699	15522	2.9	14	-N	3	C		19		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP68971	05	1724+0	1724+0	1731	S30	W03	.607	15509	5.5	7	-N				20	.3		
HOLL	05	1724	1724	1728	S30	W05	.609	15509	5.4	4	-B	3	C		22			
RAMY	05	1724	1724	1734	S30	W02	.606	15509	5.6	10	-N	4	C		23			
972 HOLL	05	1752	1758	1803	S21	W05	.480	15526	5.4	11	-N	3	C		26			Y5
973 MCMA	05	1850	1852	1900	S35	W04	.674	15509	5.5	10	-F		D	1852	75	1.0	E	Y5
974 MCMA	05	1853	1855	1900	S25	W30	.688	15507	3.5	7	-F		C	1855	30	.4	DH	Y5
975 RAMY	05	1947	2023	2036	S22	W06	.497	15526	5.4	49	-B	3	C		37			Y5
976 MCMA	05	2009		2011D	N32	E88	.995	15525	12.4	2D	-F		C	2010			D	Y5
977 RAMY	05	2013	2016	2022	N34	E81	.980	15525	11.9	9	-B	3	C		23			Y5
GRP68978	05	2024	2043	2058	S32	W05	.636	15509	5.5	34	-B				50	.6	E	
RAMY	05	2024	2043	2058	S30	W04	.608	15509	5.6	34	-B	3	C		73			
MCMA	05	2045E		2055D	S34	W07	.666	15509	5.3	100	-N		C	2045	40	.5	E	
979 MCMA	05	2051E		2055D	N32	E88	.995	15525	12.5	4D	-F		C	2051			E	Y5
980 RAMY	05	2105	2106	2110	N34	E80	.977	15525	11.9	5	-B	3	C		18			Y5
981 RAMY	05	2115	2123	2127	S22	W06	.497	15526	5.4	12	-N	3	C		24			Y5
	05	2154	2230	NO FLARE PATROL														
	05	0152	0204	NO FLARE PATROL														
	05	0214	0230	NO FLARE PATROL														
982 VORO	05	2254E		2337	N17	W28	.485	15508	3.9	43D	1F		C	2257	358	4.1	EJ	Y5
GRP68983	06	0023+5	0023	0034	N32	E81	.980	15525	12.1	11	-N							
PALE	06	0023E	0023U	0031	N33	E78	.970	15525	11.9	8D	-N	3	C		29		F	
VORO	06	0028		0037	N32	E85	.990	15525	12.4	9	-N		C	0031	45		D	
984 PALE	06	0031E	0036	0038	S21	W11	.504	15526	5.2	7D	-N	3	C		29		FDE	Y5
985 VORO	06	0131	0132	0136	N18	W36	.597	15508	3.4	5	-F		C	0132	63	.7	D	Y5
GRP68986	06	0217+3	0221+4	0239	S33	W07	.653	15509	5.6	22	-B				70	.9	J	
VORO	06	0217	0221	0240	S35	W05	.676	15509	5.7	23	-B		C	0221	99	1.3	DJ	
PALE	06	0220	0225	0237	S31	W09	.632	15509	5.4	17	-B	3	C		46		F	
987 PALE	06	0249	0249	0258	S23	W11	.531	15526	5.3	9	-N	3	C		22		DE	Y5
988 ABST	06	0711E	0714	0718D	N20	W39	.641	15508	3.4	7D	-F		P	0714	87	1.1	DJ	Y5
GRP68989	06	0826	0830	0842	S23	W16	.560	15526	5.2	16	1N						EJ	
ABST	06	0826	0830	0842	S23	W16	.560	15526	5.2	16	1N		C	0830	236	2.9	EJ	
HTPR	06	0832E		0840D	S24	W17	.579	15526	5.1	8D	-F		C	0834	60	.6	E	
990 ABST	06	1037	1042	1057	N19	W41	.663	15508	3.4	20	-N		C	1042	87	1.2	DJ	Y5
991 RAMY	06	1052	1056	1210D	S23	W15	.554	15526	5.3	78D	-B	3	C		90		FDE	Y5
GRP68992	06	1118	1126+6	1134	S30	W11	.625	15509	5.6	16	-B				60	.8	U	
RAMY	06	1118	1126	1128D	S30	W11	.625	15509	5.6	10D	-B	3	V		63			
TEHR	06	1129E	1132	1134	S30	W11	.625	15509	5.7	5D	-B	2	C		64		U	
993 RAMY	06	1218	1219	1226	S20	W42	.760	15507	3.4	8	-N	4	C		22			Y5
994 MCMA	06	1222	1223	1227	N32	E80	.977	15525	12.5	5	-N		C	1223			D	Y5
GRP68995	06	1308>9	1325+0 1335	1344	N18	W41	.660	15508	3.5	36	-N				35	.5	E	
MCMA	06	1308	1325	1344	N18	W41	.660	15508	3.5	36	-N	*	C	1325	35	.5	E	
RAMY	06	1325	1325	1331	N18	W40	.648	15508	3.6	6	-N	*	C		28			
KANZ	06	1329E	1335	1345	N18	W43	.685	15508	3.3	16D	-F	*	C					
GRP68996	06	1314+1	1316+0 1330+1	1404	S32	W03	.634	15509	6.3	50	-N				110	1.4	KU	
MCMA	06	1314	1330	1415	S32	W03	.634	15509	6.3	61	-N		C	1330	150	1.9	EFK	
MCMA	06	1314	1316	1415	S32	W03	.634	15509	6.3	61	-N			1316	125	1.6		
RAMY	06	1315	1316	1318D	S32	W13	.658	15509	5.6	3D	-B	4	V		102		FDE	
TEHR	06	1320E	1323	1330	S31	W11	.638	15509	5.7	10D	-B	2	C		127		F	
HOLL	06	1328	1330	1358	S33	E03	.647	15509	6.8	30	-N	2	C		32		U	
KANZ	06	1329E	1331	1359	S30	W01	.605	15509	6.5	30D	-N		C					

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP68997	06	1338+9	1348+1	1407	S22	W15	.541	15526	5.4	29	-N				30	.4		
HOLL	06	1338	1349	1426	S23	W15	.554	15526	5.4	48	-B	2	C		35		F	
KANZ	06	1345	1348	1403	S22	W18	.561	15526	5.2	18	-F		C					
MCMA	06	1347	1348	1355	S22	W15	.541	15526	5.4	8	-F		C	1348	20	.3	D	
RAMY	06	1347	1348	1410	S23	W16	.560	15526	5.4	23	-B	4	C		19			
GRP68998	06	1448+1	1452+1	1501	S23	W16	.560	15526	5.4	13	-B				60	.7	U	
MCMA	06	1448	1453	1500	S22	W16	.547	15526	5.4	12	-N		C	1453	50	.5	E	
RAMY	06	1448	1452	1502	S23	W17	.567	15526	5.3	14	-B	4	C		68		FDE	
HOLL	06	1449	1452	1501	S23	W16	.560	15526	5.4	12	-B	3	C		54		U F	
999 RAMY	06	1600	1601	1615	S23	W18	.573	15526	5.3	15	-B	4	C		46			Y5
0 RAMY	06	1617	1618	1621	S32	W15	.666	15509	5.6	4	-N	4	C		27			Y5
GRP69001	06	1641+6	1647 1654	1713	S23	W17	.567	15526	5.4	32	-B				100	1.2		
HOLL	06	1641	1654	1709	S23	W17	.567	15526	5.4	28	-B	3	C		65		F	
RAMY	06	1647	1647	1715	S23	W18	.573	15526	5.3	28	-B	4	C		19		F	
MCMA	06	1651E		1731D	S22	W17	.554	15526	5.4	40D	-N		C	1655	125	1.6	E	
PALE	06	1655E	1703	1710	S23	W19	.581	15526	5.3	15D	-N	3	C		76		DE	
GRP69002	06	1759+0	1759+1	1811	N16	W38	.618	15508	3.9	12	-N				30	.4		
RAMY	06	1759	1800	1811	N16	W38	.618	15508	3.9	12	-B	4	C		34			
MCMA	06	1759	1800	1811	N19	W46	.721	15508	3.3	12	-N		C	1800	40	.6	D	
PALE	06	1759	1759	1806	N16	W36	.592	15508	4.0	7	-N	3	C		25		F	
3 PALE	06	1856	1856	1907	S23	W20	.588	15526	5.3	11	-N	3	C		36		DE	Y5
GRP69004	06	1921>9	1939+1	1955	N33	E68	.925	15525	11.9	34	-B						F	
HOLL	06	1921	1940	2008	N35	E67	.921	15525	11.8	47	-B	3	C		98		F	
MCMA	06	1921E		1935D	N28	E72	.944	15525	12.2	14D	-F		C	1928			D	
RAMY	06	1935	1939	1955	N34	E68	.926	15525	11.9	20	-B	3	C		41			
PALE	06	1938	1939	1947	N33	E69	.930	15525	12.0	9	-N	3	C		22		F	
GRP69005	06	1934+1	1935+0	1939	S32	W16	.670	15509	5.6	5	-B				50	.7	F	
PALE	06	1934	1935	1939	S31	W18	.668	15509	5.5	5	-B	3	C		40		F	
HOLL	06	1935	1935	1937	S32	W15	.666	15509	5.7	2	-N	3	C		46			
RAMY	06	1935	1935	1944	S32	W16	.670	15509	5.6	9	-B	3	C		62			
6 RAMY	06	2006	2006	2011	S32	W17	.675	15509	5.6	5	-N	3	C		29		F	Y5
7 RAMY	06	2047	2050	2053	N17	W72	.944	15496	1.5	6	-N	3	C		15			Y5
GRP69008	06	2219	2223+0	2256	S23	W21	.596	15526	5.4	37	-B				80	1.0		
HOLL	06	2219	2223	2250	S23	W20	.588	15526	5.4	31	-B	3	C		79		FDE	
PALE	06	2223E	2223U	2301D	S23	W22	.603	15526	5.3	38D	-B	3	C		89		FDE	
GRP69009	06	2327	2332+0	2353	S31	W18	.668	15509	5.6	26	-N				50	.7		
HOLL	06	2327	2332	2353	S32	W17	.675	15509	5.7	26	-N	3	C		47		F	
PALE	06	2330E	2332U	2350D	S31	W20	.679	15509	5.5	20D	-B	3	C		46		FDE	
10 HOLL	06	2330	2333	2354	N35	E65	.909	15525	11.9	24	-N	3	C		57		FDE	Y5
GRP69011	06	2331+1	2336+5	2350	S23	W21	.596	15526	5.4	19	-N				30	.4		
PALE	06	2331E	2341U	2349D	S23	W22	.603	15526	5.3	18D	-N	3	C		29		FDE	
HOLL	06	2332	2336	2350	S23	W21	.596	15526	5.4	18	-N	3	C		31			
GRP69012	07	0605	0608+4	0619	S34	W22	.722	15509	5.6	14	-N				110	1.6	FJ	
ABST	07	0605	0608	0615	S35	W22	.732	15509	5.6	10	-F		C	0608	87	1.3	FJ	
TEHR	07	0608E	0612	0619	S30	W21	.674	15509	5.7	11D	-B	2	C		95		F	
CULG	07	0610E	0610U	0619D	S34	W23	.727	15509	5.5	9D	1N		P	0610	150	2.2	FB	
GRP69013	07	0650	0657	0700D	S31	W27	.721	15509	5.3	10	-F						E	
HTPR	07	0650	0657	0700	S31	W30	.741	15509	5.0	10	-F		C	0657	20	.2		
ISTA	07	0700E		0740	S32	W24	.713	15509	5.5	40D	-F						E	
14 ISTA	07	0755E		0805D	N16	W36	.592	15508	4.6	10D	-F						E	Y5
15 ISTA	07	0840E		0855D	S38	W20	.754	15509	5.9	15D	-F						D	Y5
16 RAMY	07	1232	1233	1247	S23	W29	.662	15526	5.3	15	-N	3	C		27			Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP69017	07	1353	1359 1425	1547	N33	E58	.860	15525	11.9	114	1B						U	
HOLL	07	1353	1414	1547	N35	E58	.864	15525	11.9	114	1B	2	C		260		U F	
RAMY	07	1356E	1359	1422	N33	E57	.853	15525	11.9	26D	-B	3	C		46			
MCMA	07	1403E		1550	N28	E61	.875	15525	12.2	107D	1B		C	1415	110	2.4	E	
RAMY	07	1422E	1425U	1508	N33	E57	.853	15525	11.9	46D	-B	3	C		110			
18 RAMY	07	1427	1427	1430	S32	W26	.725	15509	5.7	3	-N	3	C		26			Y5
GRP69019	07	1534+3	1537+3	1548	N18	W58	.842	15508	3.3	14	-F				30	.6	D	
HTPR	07	1534	1540	1550	N18	W58	.842	15508	3.3	16	-F		C	1540	30	.6		
MCMA	07	1536	1537	1548	N19	W58	.843	15508	3.3	12	-F		C	1537	30	.6	D	
RAMY	07	1537	1538	1546	N15	W50	.761	15508	3.9	9	-N	3	C		20			
20 MCMA	07	1620E	1632	1650	N32	E63	.894	15525	12.4	30D	-F		C	1632	40	.9	E	Y5
21 RAMY	07	1750	1751	1809	S23	W32	.689	15526	5.3	19	-B	3	C		20			Y5
22 RAMY	07	1809	1811	1814	N15	W52	.783	15508	3.9	5	-B	3	C		41			Y5
23 RAMY	07	1828	1830	1836	N33	E55	.838	15525	11.9	8	-N	3	C		25			Y5
24 RAMY	07	1908	1909	1912	N15	W52	.783	15508	3.9	4	-N	3	C		19			Y5
25 RAMY	07	1936	1936	1942	S32	W29	.743	15509	5.6	6	-B	3	C		57			Y5
GRP69026	07	2026+1	2028+1	2044	N18	W44	.696	15508	4.6	18	-N				35	.5	E	
RAMY	07	2026	2028	2042	N16	W42	.669	15508	4.7	16	-B	3	C		36			
MCMA	07	2027	2029	2045D	N21	W46	.725	15508	4.4	18D	-N		C	2029	30	.4	E	
27 RAMY	07	2048	2049	2104	N15	W53	.793	15508	3.9	16	-N	3	C		30			Y5
28 RAMY	07	2132	2134	2136	S32	W30	.750	15509	5.6	4	-B	3	C		47			Y5
	07	2212	2224	NO FLARE PATROL														
	07	2234	2314	NO FLARE PATROL														
GRP69029	07	2330+1	2332 2351	0039D	S28	W17	.628	15518	6.7	69	?N						S	
PALE	07 IMP.S	2330E	2332U IMP.?	2350D	S31	W20	.679	15518	6.5	20D	B	3	C		46		FDE	
MITK	07	2331	2351	0039D	S25	W15	.579	15518	6.9	68D	2F		C	2351	570	7.1	ES	
GRP69030	08	0122E	0123+2	0137	S22	W36	.717	15526	5.4	15	-N				100	1.4		
PALE	08	0122E	0123U	0142D	S23	W36	.724	15526	5.4	20D	-B	3	C		103		FDE	
MANI	08	0124E	0125	0132	S21	W36	.710	15526	5.4	8D	-N	3	V		100	1.4	F	
GRP69031	08	0230E	0234 0243	0307	S30	W37	.782	15509	5.3	37	-B							
TEHR	08	0230E	0234U	0307	S31	W37	.789	15509	5.3	37D	-B	1	C		63			
PALE	08	0239E	0243U	0302D	S30	W38	.789	15509	5.3	23D	-B	3	C		76		FDE	
32 TEHR	08	0357	0403	0420	S21	W38	.729	15526	5.3	23	-B	1	C		63			Y5
33 ABST	08	0529	0532	0550	N33	E58	.860	15525	12.6	21	-F		C	0532	87	1.7	OJ	Y5
34 ABST	08	0714	0715	0720	S35	W34	.799	15509	5.8	6	-F		C	0715	87	1.4	OJV	Y5
GRP69035	08	0938+1	0948 0956+2	1030	S21	W40	.748	15526	5.4	52	-F				110	1.6	FJ	
ZURI	08	0938	0948	1034	S20	W40	.742	15526	5.4	56	1F		C	0948	160	2.5		
ABST	08	0939	0958	1022	S23	W40	.760	15526	5.4	43	-N		C	0958	131	2.0	FJ	
HTPR	08	0950	0956	1030	S22	W42	.771	15526	5.3	40	-F		C	0956	100	1.3	E	
KANZ	08	0958E		1013D	S20	W40	.742	15526	5.4	15D	-N		C				F	
36 RAMY	08	1115	1117	1124	S32	W37	.796	15509	5.7	9	-B	3	C		69			Y5
37 RAMY	08	1152	1152	1202	N33	E46	.763	15525	11.9	10	-B	3	C		23			Y5
38 RAMY	08	1208	1215	1222	N15	W62	.876	15508	3.9	14	-N	3	C		46			Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY								
	DATE	START	MAX. PHASE	END	LAT.	MER. DIST.				MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69039	08	1250+2	1253+2 1301	1313	S23	W42	.777	15526	5.4	23	1N				160	2.5	E
ZURI	08	1250	1254	1310	S20	W41	.751	15526	5.5	20	1N		C	1254	200	3.2	
HTPR	08	1251	1253	1310	S23	W43	.786	15526	5.3	19	1F		C	1253	200	3.0	E
RAMY	08	1251	1253	1257	S23	W42	.777	15526	5.4	6	-B	3	C		152		DE
MCMA	08	1252	1255	1335D	S23	W44	.794	15526	5.2	43D	1B		C	1255	120	2.0	E
TEHR	08	1253E	1254	1302	S22	W41	.763	15526	5.5	9D	-B	2	C		127		F
RAMY	08	1257	1301	1319	S23	W42	.777	15526	5.4	22	1B	3	C		169		DE
40 RAMY	08	1320	1325	1347	S23	W42	.777	15526	5.4	27	-B	3	C		38		Y5
41 ZURI	08	1413	1413	1415	S20	W42	.760	15526	5.4	2	-F		C	1413	80	1.3	Y5
42 RAMY	08	1618	1618	1622	S23	W44	.794	15526	5.4	4	-B	3	C		20		Y5
GRP69043	08	1622+6	1624+5	1641	S27	W47	.838	15509	5.2	19	-N				70	1.2	E
HTPR	08	1622	1624	1640	S27	W47	.838	15509	5.2	18	-F	*	C	1624	30	.4	E
MCMA	08	1625E	1629	1657	S27	W47	.838	15509	5.2	32D	1N	*	C	1629	110	2.1	E
RAMY	08	1628	1629	1641D	S26	W42	.794	15509	5.5	13D	-B	*	C		65		F
GRP69044	08	1625>9	1626+3	1636	N18	W70	.932	15508	3.4	11	-N				25		D
HTPR	08	1625	1626	1636	N18	W70	.932	15508	3.4	11	-N		C	1626	20	.4	
MCMA	08	1626	1629	1632	N18	W72	.944	15508	3.3	6	-N		C	1629	25	.8	D
RAMY	08	1635	1639	1641D	N15	W64	.892	15508	3.9	6D	-B	3	C		19		
45 RAMY	08	1639	1639	1641D	N16	W53	.793	15508	4.7	2D	-N	3	C		19		Y5
GRP69046	08	1739	1740	1744	S22	W47	.815	15526	5.2	5	-N				45	.8	E
PALE	08	1739	1740	1744	S22	W46	.806	15526	5.3	5	-B	3	C		35		DE
MCMA	08	1740E		1743D	S23	W49	.835	15526	5.1	3D	-N		P	1742	50	.9	E
GRP69047	08	1804+0	1810	1813	N15	W64	.892	15508	4.0	9	-N				30	.7	E
PALE	08	1804	1810	1813	N15	W64	.892	15508	4.0	9	-B	3	C		27		DE
MCMA	08	1804E		1810D	N16	W64	.892	15508	4.0	6D	-F		P	1809	30	.7	E
GRP69048	08	1836	1839	1926	N15	W66	.906	15508	3.8	5D	-B						
PALE	08	1836	1839	1926	N15	W64	.892	15508	4.0	5D	-B	3	C		39		FDE
MCMA	08	1838E		1900D	N16	W68	.920	15508	3.7	22D	1N		C	1840	130	3.5	E
	08	2106	2120	NO FLARE PATROL													
	08	2144	2227	NO FLARE PATROL													
	08	0029	0037	NO FLARE PATROL													
	08	0039	0043	NO FLARE PATROL													
49 CULG	08	2236	2240	2303	S26	W61	.926	15509	4.4	27	-F		C	2240	50		Y5
50 CULG	08	2253	2311	2333	N16	W75	.960	15508	3.3	40	-F		C	2311	40		Y5
GRP69051	08	2335+3	2339+1	2347	N30	E41	.703	15525	12.1	12	-F						E
CULG	08	2335	2340	2350	N29	E41	.698	15525	12.1	15	-N		C	2340	70	1.0	
MITK	08	2338	2339	2343	N32	E41	.712	15525	12.1	5	-F		C	2339			E
GRP69052	09	0000+6	0007	0014D	S29	W48	.855	15509	5.4	14	-N						
CULG	09	0000	0016	0054U	S27	W53	.880	15509	5.0	54D	-N		C	0016	80	1.6	F
HOLL	09	0006	0007	0014	S32	W43	.836	15509	5.8	8	-B	3	C		29		FDE
53 CULG	09	0127	0145	0203	S27	W66	.953	15507	4.1	36	-F		C	0145	40		Y5
54 CULG	09	0624	0635	0652	N20	W79	.975	15508	3.3	28	?B		C	0635	80		Y5
	IMP.1 NO. MITK1 CATA1																
GRP69055	09	0914+1	0915+2	0935	S28	W66	.955	15509	4.4	21	1N				110		DJ
KHAR	09	0914E	0915	0940D	S27	W68	.962	15509	4.3	26D	1N		P	0923	130		
ABST	09	0915	0917	0930	S30	W64	.950	15509	4.6	15	1N		C	0917	87		DJ
56 HTPR	09	1048	1052	1102	N37	W87	.993	15522	2.9	14	-F		C	1052	30		Y5
57 HTPR	09	1126	1127	1136	N15	E65	.899	15530	14.4	10	-N		C	1127	40	.9	Y5
GRP69058	09	1305>9	1433	1438	N36	W88	.995	15522	2.9	93	-N						
HTPR	09	1305		1415D	N37	W88	.995	15522	2.9	70D	-F		C	1415	30		
RAMY	09	1404	1433	1438	N35	W88	.995	15522	3.0	34	-N	3	C				
GRP69059	09	1438+2	1441 1502	1522D	N36	W89	.996	15522	2.9	44	-N						
HTPR	09	1438E		1630D	N37	W89	.996	15522	2.9	112D	-F		C	1504	40		
RAMY	09	1440	1441	1450	N35	W88	.995	15522	3.0	10	-N	3	C				
RAMY	09	1458	1502	1522	N35	W89	.996	15522	2.9	24	-B	3	C				

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
60 RAMY	09	1545	1550	1608	N35	W89	.996	15522	3.0	20	-N	3	C				Y5
61 HTPR	09	1550	1553	1557	S32	W60	.935	15509	5.2	7	-F		C	1553	20	.4	Y5
GRP69062	09	1716>9	1747	1750	N36	W86	.991	15522	3.3	34	-N						FK
MCMA	09	1716E		1750D	N36	W88	.995	15522	3.1	34D	-N		C	1746			K
PALE	09	1747	1747	1750	N37	W85	.989	15522	3.4	3	-N	3	C		9		F
	09	2133	2138	NO FLARE PATROL													
63 CULG	09	2321	2328	2333	N38	W90	.997	15522	3.2	12	-N		C	2328	20		Y5
64 HOLL	09	2355	2355	2359	S33	W56	.918	15509	5.8	4	-N	3	C		12		Y5
65 CULG	10	0105U	0123U	0210U	N17	W86	.995	15508	3.6	65D	1F		C	0120	80		Y5
GRP69066	10	0124+5	0130+3	0142	S32	W53	.898	15509	6.1	18	-B						E
VORO	10	0124	0133	0144D	S34	W47	.872	15509	6.5	20D	1N		C	0133	108	2.1	E
PALE	10	0129	0130U	0140	S31	W60	.933	15509	5.6	11	-B	3	C		42		DE
67 CULG	10	0303	0309	0316	S30	W76	.989	15509	4.4	13	-N		C	0309	50		Y5
68 CULG	10	0325U	0334U	0355U	N17	W86	.995	15508	3.7	30D	?F		C	0334	80		Y5
	IMP.1 NO # VORO1																
69 CULG	10	0422U	0450U	0537U	N17	W88	.998	15508	3.6	75D	2N		C	0450	200		Y5
70 ABST	10	0552	0600	0612	N37	W90	.997	15522	3.5	20	-F		C	0600	87		ADJK Y5
71 ABST	10	0741E	0745	0749D	N20	E63	.885	15530	15.0	8D	-F		P	0745	87		E Y5
72 ABST	10	0741E	0746	0806D	N32	E30	.606	15525	12.6	25D	-F	*	P	0746	87	1.1	D Y5
73 ABST	10	0858E	0858	0900D	S36	W63	.957	15509	5.6	2D	-N		P	0858	87		D Y5
74 ABST	10	1027E	1028	1045	N32	E30	.606	15525	12.7	18D	-N		P	1028	131	1.6	EJ Y5
75 ABST	10	1035E	1037	1045	N20	E62	.877	15530	15.1	10D	-F		P	1037	87	1.8	D Y5
GRP69076	10	1150	1151+2	1214	N33	E20	.526	15525	12.0	24	1B				230	2.7	
TEHR	10	1150	1153	1207	N33	E21	.534	15525	12.1	17	-B	1	C		159		DE
RAMY	10	1151E	1151U	1221	N33	E20	.526	15525	12.0	30D	1B	3	C		296		DE
GRP69077	10	1436+2	1438+3	1455	S33	W61	.942	15509	6.0	19	-N				50		EL
HOLL	10	1436	1441	1455	S33	W64	.955	15509	5.8	19	-N	3	C		54		
MCMA	10	1438E	1441	1455D	S35	W61	.947	15509	6.0	17D	1N		C	1441	70	2.1	EL
RAMY	10	1438	1438	1448	S33	W52	.896	15509	6.7	10	-N	3	C		15		
GRP69078	10	1510+5	1515	1521	N19	E55	.815	15530	14.8	11	-N						E
WEND	10	1510E		1520D	N18	E54	.805	15530	14.7	10D	-N		P				E
HOLL	10	1515	1515	1521	N20	E56	.825	15530	14.8	6	-N	3	C		21		
GRP69079	10	1542+0	1544+3	1550	S23	W73	.976	15526	5.2	8	-N						DH
RAMY	10	1542	1544	1549	S23	W69	.961	15526	5.5	7	-B	4	C		12		
MCMA	10	1542	1547	1551D	S23	W78	.990	15526	4.8	9D	-N		P	1547			DH
GRP69080	10	1628+1	1630+1	1648	S33	W66	.963	15509	5.7	20	1N						AH
RAMY	10	1628	1631	1648	S32	W68	.969	15509	5.6	20	-B	4	C		47		F H
HOLL	10	1629	1630	1648	S33	W65	.959	15509	5.8	19	-B	3	C		48		FDE
WEND	10	1630E		1648	S33	W58	.928	15509	6.3	18D	2N		P		500	11.6	AH
MCMA	10	1631E		1638D	S35	W68	.973	15509	5.6	7D	1N		P	1636	60	2.2	EH
GRP69081	10	1708>9	1730+7	1801	N19	E54	.806	15530	14.8	53	1B				170	3.0	
RAMY	10	1708	1730	1801D	N19	E54	.806	15530	14.8	53D	1B	3	C		168		
HOLL	10	1722	1734	1802	N20	E54	.807	15530	14.8	40	1B	3	C		169		
PALE	10	1730	1737	1749	N18	E55	.815	15530	14.9	19	-B	3	C		65		FDE
	10	1809	1926	NO FLARE PATROL													
GRP69082	10	2153+1	2155+0	2204	N18	E56	.824	15530	15.1	11	-N				50	.9	
VORO	10	2153	2155	2202	N18	E56	.824	15530	15.1	9	-N		C	2155	45	.8	E
CULG	10	2153	2155	2215	N18	E56	.824	15530	15.1	22	-N		C	2155	50	.9	
HOLL	10	2154	2155	2204	N20	E52	.787	15530	14.8	10	-N	3	C		53		F
83 CULG	10	2259	2307	2321D	S21	W88	1.000	15507	4.4	22D	-N		P	2307	40		Y5
84 CULG	11	0206E	0213U	0237D	S20	W80	.993	15526	5.1	31D	?N		P	0213	120		Y5
	IMP.1 NO # VORO1																

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
85 KANZ	11	0743	0743	0751	S20	E57	.886	0	15.6	8	-F		C				G Y5
GRP69086	11	1057	1101+1	1109	N26	E90	.998	15536	18.2	12	-N						AD
KANZ	11	1057	1102	1109	N28	E90	.998	15536	18.2	12	-N		C				T
AOST	11	1059E	1101	1102D	N25	E90	.999	15536	18.2	30	1F		P	1101	87		AD
GRP69087	11	1109+1	1114+0	1145	N18	E44	.696	15530	14.8	36	-N						
KANZ	11	1109	1114	1145	N17	E44	.695	15530	14.8	36	-N		C				
RAMY	11	1110	1114	1145D	N19	E44	.698	15530	14.8	35D	-B	3	C		82		
88 MCMA	11	1625	1630	1635	N26	E90	.998	15536	18.4	10	-F		C	1630			D Y5
GRP69089	11	1653	1659	1700	N17	E43	.683	15530	14.9	7	-N						E
KANZ	11	1653		1657	N17	E44	.695	15530	15.0	4	-N						
MCMA	11	1656E	1659	1703D	N17	E43	.683	15530	14.9	7D	-N		C	1659	60	.9	E
	11	1703	1717	NO FLARE PATROL													
	11	1719	1723	NO FLARE PATROL													
	11	1733	1737	NO FLARE PATROL													
	11	1739	1748	NO FLARE PATROL													
	11	1750	1805	NO FLARE PATROL													
GRP69090	11	1830>9	1833 1841+0	1855	N18	E43	.685	15530	15.0	25	-F				35	.5	EK
MCMA	11	1830	1841	1855D	N16	E45	.705	15530	15.1	25D	-F		C	1841	40	.6	EK
MCMA	11	1830	1833	1855D	N16	E45	.705	15530	15.1	25D	-F			1833			
HOLL	11	1841	1841	1847	N20	E41	.665	15530	14.9	6	-N	2	C		26		
GRP69091	11	2248+1	2258>9	2332	N18	E39	.635	15530	14.9	44	-N				70	.9	HJ
VORO	11	2248	2258	2333	N18	E42	.673	15530	15.1	45	-N		C	2258	81	1.1	EJ
HOLL	11	2248	2305	2331	N20	E38	.629	15530	14.8	43	-N	2	C		74		F H
PALE	11	2249	2308	2332	N18	E39	.635	15530	14.9	43	-B	3	C		60		DE F
CULG	11	2254E	2301	2330	N16	E40	.644	15530	15.0	36D	-N		C	2301	80	1.0	F
GRP69092	11	2350+0	2353+2	0009	N26	E90	.998	15536	18.7	19	-N				50		DH
CULG	11	2350	2355	0015	N25	E90	.999	15536	18.7	25	-N		C	2355	40		
VORO	11	2350	2353	0002	N28	E90	.998	15536	18.7	12	1F		C	2353	63		DH
93 VORO	12	0040E		0051	N28	E90	.998	15536	18.8	11D	?N		C	0041	63		D Y5
	IMP+1 NO + CULG1 HOLL1 PALE1																
94 CULG	12	0128	0137	0150	N25	E87	.995	15536	18.6	22	-F		C	0137	30		Y5
95 CULG	12	0435	0439	0451	N21	W90	.999	15512	5.4	16	-F		C	0439	20		Y5
96 AOST	12	0543	0547	0553D	N25	E90	.999	15536	19.0	10D	?N		P	0547	87		AD Y5
	IMP+1 NO + CULG1																
97 RAMY	12	1459	1459	1506	N35	E60	.878	15532	17.1	7	-N	3	C		28		Y5
	12	1702	1703	NO FLARE PATROL													
GRP69098	12	2057	2100	2117D	N19	E26	.467	15530	14.8	20	-N						
HOLL	12	2057	2100	2117	N19	E25	.454	15530	14.7	20	-N	3	C		36		
PALE	12	2111E	2111U	2149D	N19	E27	.481	15530	14.9	38D	-N	3	C		36		
99 CULG	12	2134	2145	2210	N34	E86	.992	15543	19.3	36	-F		C	2145	40		Y5
GRP69100	12	2255+2	2256+9	2343	N19	E27	.481	15530	15.0	48	-B				170	2.0	FJ
CULG	12	2255	2305	0000	N18	E27	.476	15530	15.0	65	-B		C	2305	170	1.9	
PALE	12	2256	2256	2343	N19	E26	.467	15530	14.9	47	-B	3	C		160		F
VORO	12	2257	2301	2323	N19	E30	.521	15530	15.2	26	1N		C	2301	179	2.1	J
GRP69101	13	0304+2	0306+1	0310	N19	E24	.440	15530	14.9	6	-N				60	.7	
CULG	13	0304	0307	0310D	N18	E24	.434	15530	14.9	6D	-N		C	0307	50	.6	
VORO	13	0306		0309	N19	E25	.454	15530	15.0	3	-N		P	0306	45	.5	E
PALE	13	0306E	0306	0313	N19	E24	.440	15530	14.9	7D	-B	3	C		67		F
GRP69102	13	0933+4	0941+1	0947	N19	E26	.467	15530	15.4	8	-F				45	.5	E
HTPR	13	0939	0941	0946	N18	E27	.476	15530	15.4	7	-F		C	0941	30	.3	E
ZURI	13	0939	0941	0945	N19	E26	.467	15530	15.4	6	-F		C	0941	60	.7	
KANZ	13	0942	0942	0948	N20	E26	.473	15530	15.4	6	-N		C				
ISTA	13	0943		0947	N20	E27	.487	15530	15.4	4	-F						E
103 ZURI	13	1003	1009	1015	N35	E80	.977	15543	19.4	12	-F		C	1009	120		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69104	13	1059+1	1101+1	1115	N35	E82	.983	15543	19.6	16	1F				80		D
ZURI	13	1059	1101	1115	N35	E80	.977	15543	19.5	16	-F		C	1101	70		
ABST	13	1100	1102	1105D	N36	E85	.990	15543	19.8	5D	1F		P	1102	87		D
105 ZURI	13	1317	1317	1331	S15	W72	.965	15521	8.2	14	-F		C	1317	70		Y5
106 HUAN	13	1637		1646	N35	E75	.959	15543	19.3	9	-F	1	C				Y5
107 HUAN	13	1704	1709	1717	S28	E87	1.000	15541	20.2	13	-F	1	C	1709	20		D Y5
108 HUAN	13	1838	1839	1841	S29	E85	1.000	15541	20.2	3	-F	1	C	1839	20		D Y5
109 HUAN	13	1843	1846	1850	N35	E75	.959	15543	19.4	7	-N	1	C	1846	30		Y5
	13	1918	1921	NO FLARE PATROL													
	13	1924	1928	NO FLARE PATROL													
110 HUAN	13	1928E		1944D	N35	E50	.804	15532	17.6	16D	-F	1	P	1932	25	.4	D Y5
111 HUAN	13	1930		1939	N35	E73	.951	15543	19.3	9	-F	1	C				E Y5
112 HUAN	13	2103		2111D	N35	E73	.951	15543	19.4	8D	-F	1	P	210E	60		E Y5
	13	2157	2200	NO FLARE PATROL													
113 VORO	13	2306	2307	2310	N34	E70	.936	15543	19.2	4	-F		C	2307	63		DJ Y5
114 VORO	14	0008	0009	0011	N22	E47	.738	15535	17.5	3	-F		C	0009	27	.3	D Y5
115 PALE	14	0053	0110	0217	N37	E67	.923	15543	19.1	84	?N	3	C		134		DE F Y5
	IMP.1 NO 1 VORO1																
116 KANZ	14	0704	0704	0719	N18	E10	.251	15530	15.0	15	-N		C				D Y5
GRP69117	14	0810+2	0820+2	0917	N36	E69	.932	15543	19.5	67	-F				60		DJ
ABST	14	0810	0820	0828	N37	E74	.956	15543	19.9	18	1F		C	0820	79		DJ
KANZ	14	0812	0822	0857	N36	E67	.922	15543	19.4	45	-F		C				
ZURI	14	0814E	0820	0936	N37	E69	.933	15543	19.5	82D	-N		P	0820	50		
KHAR	14	0900E	0900	1005D	N34	E69	.931	15543	19.6	65D	-F		P	0918	60		D
118 HUAN	14	1439	1441	1442	N28	E53	.810	15536	18.6	3	-F	1	C	1441	20	.3	D Y5
GRP69119	14	1440+1	1446+6	1508	N37	E63	.900	15543	19.3	28	-N				20		D
HTPR	14	1440	1446	1508	N37	E63	.900	15543	19.3	28	-F		C	1446	20	.4	
HUAN	14	1441	1452	1457	N37	E63	.900	15543	19.3	16	-F	1	C	1452	20		D
HOLL	14	1506	1541	1625	N38	E59	.877	15543	19.1	79	-B	3	C		106		
120 HOLL	14	1507	1514	1528	N30	W33	.622	15525	12.2	21	-N	3	C		21		Y5
121 HOLL	14	1534	1610	1615	N30	W33	.622	15525	12.2	41	-B	3	C		20		Y5
GRP69122	14	1603+1	1605+0	1608	N32	E58	.859	15543	19.0	5	-N				40	.8	
HTPR	14	1603	1605	1608	N30	E58	.855	15543	19.0	5	-N		C	1605	40	.8	
HUAN	14	1604	1605	1607	N35	E58	.864	15543	19.0	3	-N	1	C	1605	40	.8	
GRP69123	14	1617>9	1643+2	1654	N18	E05	.205	15530	15.1	37	-N						
HOLL	14	1617	1643	1702	N18	E02	.190	15530	14.8	45	-B	3	C		60		
HTPR	14	1641	1643	1650	N18	E06	.212	15530	15.1	9	-F		C	1643	20	.2	
KANZ	14	1645	1645	1654D	N19	E05	.221	15530	15.1	9D	-F		C				
124 HUAN	14	1801	1802	1807	N37	E59	.875	15543	19.2	6	-F	1	C	1802	20	.4	D Y5
125 CULG	14	2130	2133	2153D	S28	E90	1.002	0	21.6	23D	?B		C	2133	120		Y5
	IMP.1 NO 1 PALE1																
GRP69126	14	2328+3	2332+1	2344	N19	E02	.207	15530	15.1	16	-N				50	.5	E
CULG	14	2328	2333	2346	N19	E02	.207	15530	15.1	18	-N		C	2333	50	.5	
VORO	14	2331	2332	2341	N20	E02	.224	15530	15.1	10	-N		C	2332	54	.5	E
127 CULG	14	2333	2339	2355	S30	E55	.903	15541	19.1	22	-F		C	2339	30	.8	Y5
GRP69128	15	0543E	0548 0550	0617	N36	E58	.867	15543	19.6	34	-F						J
ABST	15	0543E	0548	0557	N36	E56	.853	15543	19.4	14D	-F		P	0548	87	1.6	DJ
ABST	15	0543E	0550	0617	N37	E60	.882	15543	19.7	34D	-F		P	0550	87	1.6	DJ
129 HTPR	15	0603	0603	0610	S29	E58	.917	15541	19.6	7	-F		C	0603	20	.4	E Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69130	15	0733+0	0734+1	0738	N34	E53	.825	15543	19.3	5	-N		C				DJ
ABST	15	0733	0735	0739	N34	E54	.833	15543	19.4	6	-N		C	0735	87	1.6	DJ
HTPR	15	0733	0734	0736	N34	E52	.817	15543	19.2	3	-N		C	0734	30	.5	
131 KHAR	15	0845E		0910D	N34	E56	.848	15543	19.6	25D	-F		P	0859	70	1.5	Y5
132 HTPR	15	0911	0918	0931	N34	E50	.801	15543	19.1	20	-F		C	0918	20	.3	Y5
GRP69133	15	0935+9	0946+6	1005	N35	E52	.820	15543	19.3	30	-N				100	1.8	DJ
ZURI	15	0935	0947	0959	N34	E51	.809	15543	19.2	24	-N		C	0947	100	1.8	
HTPR	15	0939	0947	0956	N34	E50	.801	15543	19.2	17	-F		C	0947	100	1.5	
KANZ	15	0942	0946	1001	N35	E51	.812	15543	19.2	19	-N		C				
ABST	15	0944	0947	0959	N33	E54	.830	15543	19.5	15	-N		C	0947	96	1.7	DJ
ZURI	15	0947	0951	1009	N36	E55	.845	15543	19.5	22	-N		C	0951	50	1.0	
HTPR	15	0948	0952	1023	N35	E53	.828	15543	19.4	35	-N		C	0952	20	.3	
134 ZURI	15	1103	1111	1127	N34	E50	.801	15543	19.2	24	-F		P	1111	60	1.1	Y5
GRP69135	15	1127+1	1151+0	1205	N34	E49	.793	15543	19.2	38	-N						E
KANZ	15	1127	1151	1205	N34	E46	.767	15543	18.9	38	-N		C				
MCMA	15	1128	1151	1225	N33	E50	.798	15543	19.2	57	1N		C	1151	150	2.7	E
HTPR	15	1145	1151	1155	N34	E49	.793	15543	19.2	10	-F		C	1151	20	.3	E
136 KANZ	15	1236	1240	1251	N19	W07	.235	15530	15.0	15	-N		C				E Y5
GRP69137	15	1350+2	1356+1	1447	N34	E49	.793	15543	19.3	57	-N						
			1418												45	.8	EK
HTPR	15	1350	1357	1401	N34	E48	.784	15543	19.2	11	-F		C	1357	30	.4	
MCMA	15	1352	1356	1530D	N34	E50	.801	15543	19.3	98D	-N			1356	60	1.1	
MCMA	15	1352	1418	1530D	N34	E50	.801	15543	19.3	98D	-N		C	1418	80	1.4	EK
KANZ	15	1355E		1403D	N34	E46	.767	15543	19.0	8D	-N		C				
GRP69138	15	1453+3	1457+2	1508	N25	E40	.671	15536	18.6	15	-N				35	.5	E
MCMA	15	1453	1457	1509	N25	E40	.671	15536	18.6	16	-N		C	1457	40	.5	E
HTPR	15	1453	1458	1507	N25	E37	.637	15536	18.4	14	-N		C	1458	30	.4	E
KANZ	15	1456	1459	1459D	N26	E40	.675	15536	18.6	3D	-N		C				
139 HTPR	15	1625		1702D	N35	E48	.788	15543	19.3	37D	-F		C	1655	30	.4	Y5
140 PALE	15	1714	1722	1809	N36	E45	.767	15543	19.1	55	-B	3	C		130		DE F Y5
GRP69141	15	1824+9	1922+6	2013	N36	E46	.776	15543	19.2	115	-B				120	2.0	
PALE	15	1824	1922	2009	N36	E47	.784	15543	19.3	105	1B	3	C		172		DE F
HOLL	15	1909	1928	2028	N38	E45	.777	15543	19.2	79	-B	3	C		112		F
HUAN	15	1914		1945D	N35	E46	.771	15543	19.3	31D	-N	1	C	1926	80	1.3	
142 HOLL	15	1927	1929	1932	N39	E26	.636	15532	17.8	5	-N	3	C		51		Y5
GRP69143	15	2049+8	2057+2	2202	N37	E43	.756	15543	19.1	73	-B						
HOLL	15	2049	2059	2204	N39	E44	.774	15543	19.2	75	-B	3	C		106		F
PALE	15	2057	2057	2159	N36	E43	.751	15543	19.1	62	-B	3	C		146		FDE
144 HOLL	15	2235	2237	2251	N29	E30	.583	15536	18.2	16	-B	3	C		49		F Y5
145 HOLL	15	2252	2254	2306	N39	E43	.766	15543	19.2	14	-B	3	C		17		Y5
146 TEHR	16	0401	0405	0435	N39	E43	.766	15543	19.4	34	-B	2	C		159		U Y5
147 CULG	16	0529	0533	0545	S28	E42	.806	15541	19.4	16	-F		C	0533	20	.3	Y5
148 HTPR	16	0725	0726	0740	N35	E30	.631	15532	18.6	15	-F		C	0726	20	.2	Y5
GRP69149	16	0736+4	0742+1	0746	N35	E39	.711	15543	19.2	10	-N				110	1.6	DJ
KANZ	16	0736	0743	0746	N35	E41	.728	15543	19.4	10	-B		C				
HTPR	16	0740	0742	0745	N34	E39	.705	15543	19.2	5	-N		C	0742	80	1.0	
ABST	16	0740	0742	0759	N37	E37	.706	15543	19.1	19	1N		C	0742	148	2.1	DJ
150 HTPR	16	0929	0931	0934	S29	E39	.790	15541	19.3	5	-F		C	0931	20	.3	Y5
151 KHAR	16	0948E		1026D	N37	E43	.756	15543	19.6	38D	-F		P	0950			E Y5
GRP69152	16	1000+0	1000+1	1004	S28	E41	.798	15541	19.5	4	-F						D
ABST	16	1000	1001	1005	S27	E44	.815	15541	19.7	5	-N		C	1001	87	1.5	D
HTPR	16	1000	1000	1003	S29	E39	.790	15541	19.3	3	-F		C	1000	20	.3	
153 HTPR	16	1011	1015	1020	S29	E79	.993	15542	22.3	9	-F		C	1015	20		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Dist	CORR AREA Sq. Deg.	
	SEP																
154 KANZ	16	1258	1303	1306	N34	E34	.659	15543	19.1	8	-F		C				Y5
GRP69155	16	1326+2	1327+3 1402	1412	N36	E37	.700	15543	19.3	46	-B				130	1.9	
MEUD	16	1326	1327	1400	N34	E36	.678	15543	19.3	34	-B		C	1327	11		F
TEHR	16	1329	1330	1400	N39	E41	.751	15543	19.6	32	-B	2	C		159		FDE
MCMA	16	1334E		1430	N35	E38	.702	15543	19.4	56D	-N		C	1340	60	.9	E
HTPR	16	1339E		1415	N34	E34	.659	15543	19.1	36D	-N		C	1339	50	.6	
HTPR	16	1339E		1425	N35	E41	.728	15543	19.6	46D	-N		C	1339	30	.4	
KANZ	16	1347E	1347	1406D	N35	E37	.693	15543	19.3	19D	-B		C				F
HOLL	16	1355	1402	1417	N39	E35	.704	15543	19.2	22	-B	3	C		42		FDE
156 HTPR	16	1350	1353	1400	N28	E26	.533	15536	18.5	10	-F		C	1353	20	.2	Y5
GRP69157	16	1450+2	1453+1	1520	N28	E26	.533	15536	18.6	30	-F				40	.5	D
MCMA	16	1450	1454	1529D	N28	E27	.544	15536	18.6	39D	-N		C	1454	35	.4	D
HTPR	16	1450	1453	1520	N28	E26	.533	15536	18.6	30	-F		C	1453	40	.5	
MEUD	16	1452	1452	1506	N20	E26	.474	15536	18.6	14	-F		C				
GRP69158	16	1529>9	1543+0	1604	N28	E25	.522	15536	18.5	35	-N				80	.9	AEV
HTPR	16	1529	1543	1603	N28	E25	.522	15536	18.5	34	-N		C	1543	80	.9	E
MCMA	16	1530	1543	1607	N28	E27	.544	15536	18.7	37	-B		C	1543	70	.9	EV
MEUD	16	1539	1543	1555	N28	E25	.522	15536	18.5	16	-N		C				E
HOLL	16	1540	1543	1602	N29	E21	.492	15536	18.2	22	-B	3	C		94		F
WEND	16	1546E		1606	N30	E24	.531	15536	18.5	20D	1N		V		400	5.1	AE
GRP69159	16	1741+1	1756+1	1818	N28	E23	.502	15536	18.5	37	1N				200	2.3	V
MCMA	16	1741	1757	1815	N28	E27	.544	15536	18.8	34	1N		C	1757	160	2.0	EV
HOLL	16	1742	1756	1820	N29	E19	.473	15536	18.2	38	1B	3	C		246		FDE
GRP69160	16	1834+1	1837+4	1854	N37	E20	.573	15532	18.3	20	-N				70	.9	E
MCMA	16	1834	1841	1854	N36	E26	.607	15532	18.7	20	-F		C	1841	100	1.4	E
HOLL	16	1835	1837	1854	N39	E14	.562	15532	17.8	19	-B	3	C		50		
161 HOLL	16	1927	1958	2026	N39	E13	.558	15532	17.8	59	2B	3	C		600		U F Y5
162 HOLL	16	1955	1958	2002	N39	E32	.681	15543	19.2	7	-B	3	C		48		Z Y5
	16	2030	2043	NO FLARE PATROL													
	16	2054	2059	NO FLARE PATROL													
163 CULG	16	2323	2345	2352	N31	E36	.659	15543	19.7	29	-N		C	2345	30	.4	Y5
164 CULG	17	0053	0101	0115	N38	E08	.525	15532	17.6	22	-F		C	0101	20	.2	Y5
165 CULG	17	0140	0141	0150	N38	E11	.536	15532	17.9	10	-N		C	0141	50	.6	Y5
GRP69166	17	0358+6	0403+2 0458	0515	N35	E30	.631	15543	19.4	77	1B				160	2.1	JK
CULG	17	0358	0408	0550	N33	E30	.615	15543	19.4	112	1B		C	0408	180	2.3	FK
MITK	17	0404	0410	0509	N35	E27	.606	15543	19.2	65	-B		C	0410			E
PALE	17	0404E	0408U	0415D	N36	E30	.640	15543	19.4	11D	-B	1	C		140		F
TACH	17	0415E		0507D	N36	E30	.640	15543	19.4	52D	1N		V	0423	350	4.7	E
ABST	17	0456E	0458	0515D	N36	E34	.674	15543	19.3	19D	-F		P	0458	87	1.2	DJ
ABST	17	0456E	0458	0515D	N33	E26	.578	15543	19.2	19D	-F		P	0458	87	1.1	DJ
167 ABST	17	0517	0519	0525	N40	E33	.696	15543	19.7	8	-N		C	0519	87	1.2	DJ Y5
168 CULG	17	0528	0531	0537	N35	W64	.904	15525	12.4	9	-N		C	0531	80	1.8	Y5
GRP69169	17	0600+0	0603 0615	0621	N29	E20	.482	15536	18.7	21	-F						DJ
CULG	17	0600	0615	0626D	N29	E21	.492	15536	18.8	26D	-F		P	0615	40	.5	
ABST	17	0600	0603	0615	N29	E19	.473	15536	18.7	15	-F		C	0603	87	1.0	DJ
170 ABST	17	0735	0741	0750	S33	E35	.790	15541	19.9	15	-N		C	0741	87	1.4	DJ Y5
171 ABST	17	0807	0808	0820	N29	E19	.473	15536	18.8	13	-F		C	0808	87	1.0	DJU Y5
GRP69172	17	0826+4	0829+4	0917	N35	E27	.606	15543	19.4	51	1N				230	2.9	AEJ
ABST	17	0826	0829	0905	N34	E27	.596	15543	19.4	39	1N		C	0829	262	3.3	EJ
ABST	17	0827	0832	0905	N35	E33	.658	15543	19.8	38	-N		C	0832	87	1.2	DJ
ATHN	17	0830	0833	0905	N35	E26	.597	15543	19.3	35	-N	2		0833	147	1.8	
WEND	17	0840E		0920	N37	E26	.616	15543	19.3	40D	2N		P		600	8.6	AF
LOCA	17	0900E	0900	0925	N35	E27	.606	15543	19.4	25D	1B		V	0900	204	2.6	
ABST	17	0905E	0905	0930	N33	E26	.578	15543	19.3	25D	1N		P	0905	174	2.1	EJ
ABST	17	0905E	0905	0930	N35	E33	.658	15543	19.9	25D	-N		P	0905	87	1.2	DJ

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69173	17	1256+6	1302	1320	N35	E27	.606	15543	19.6	24	-N						Z
WEND	17	1256E		1322	N37	E28	.632	15543	19.6	260	-N		P				D
WEND	17	1256E		1315	N35	E26	.597	15543	19.5	190	-N		P				Z
TEHR	17	1300	1302	1317	N35	E30	.631	15543	19.8	17	-B	2	C		159		FDE
MEUD	17	1302		1307D	N35	E24	.581	15543	19.3	50	-N		C				F
	17	1347	1352	NO FLARE PATROL													
GRP69174	17	1459	1505+0	1615	N36	E23	.583	15543	19.3	76	2N						FIUZ
HOLL	17	1459	1505	1555	N37	E22	.587	15543	19.3	56	1B	3	C		204		Z U
LOCA	17	1503E	1505	1615	N35	E23	.573	15543	19.4	72D	2N		V	1505	530	6.5	
WEND	17	1536E		1622	N36	E23	.583	15543	19.4	46D	2N		P		500	6.9	BFIT
175 HOLL	17	1508	1509	1517	S24	E22	.614	15541	19.3	9	-N	3	C		21		Y5
176 HOMA	17	1613E		1650D	N30	E14	.444	15536	18.8	31D	-F		P	1821	30	.4	D Y5
GRP69177	17	1949	1954	2008	N36	E20	.561	15543	19.3	19	-N				80	1.0	U
HOLL	17	1949	1954	2008	N37	E20	.573	15543	19.3	19	-N	3	C		92		U F
PALE	17	1955E	1955U	2004D	N36	E21	.568	15543	19.4	9D	-N	3	C		79		FDE
178 HOLL	17	2025	2030	2056	N37	E20	.573	15543	19.4	31	-B	3	C		120		FDE Y5
179 HOLL	17	2125	2128	2205	S24	E18	.585	15541	19.2	40	-B	3	C		135		FDE Y5
180 HOLL	17	2226	2232	2253	S24	E18	.585	15541	19.3	27	-B	3	C		71		DE Y5
GRP69181	17	2242	2243 2343	0024	N36	E19	.554	15543	19.4	102	-B						U
HOLL	17	2242	2243	0019	N37	E18	.560	15543	19.3	97	-B	3	C		138		U F
MITK	17	2323E	2343	0023	N35	E20	.550	15543	19.5	65D	1B		C	2343	180	2.2	E
GRP69182	18	0119	0132+1	0212D	N35	E18	.536	15543	19.4	53	1N				210	2.5	E
MITK	18	0119	0133	0212D	N36	E18	.548	15543	19.4	53D	1N		C	0133	260	3.2	E
CULG	18	0127E	0132U	0143D	N34	E18	.524	15543	19.4	21D	1N		P	0132	170	2.0	
183 CULG	18	0520	0525	0534	N38	E16	.560	15543	19.4	14	-F		C	0525	80	1.0	Y5
184 ISTA	18	0703E		0709	S28	E19	.638	15541	19.7	6D	-N						D Y5
GRP69185	18	0727+6	0734+0	0739	N36	E17	.541	15543	19.6	12	-N				70	.8	DJ
ABST	18	0727	0734	0740	N34	E17	.516	15543	19.6	13	-N		C	0734	87	1.0	DJ
ISTA	18	0730E		0738	N36	E17	.541	15543	19.6	8D	-F			0735			D
TEHR	18	0733	0734	0739	N36	E18	.548	15543	19.7	6	-B	1	C		64		
GRP69186	18	0923+4	0928+3	0932	S28	E19	.638	15541	19.8	9	-B						E
ISTA	18	0923E		0932	S28	E19	.638	15541	19.8	9D	-B						E
MEUD	18	0927	0928	0932	S29	E19	.650	15541	19.8	5	-B		C				
TEHR	18	0929E	0931	0937	S24	E19	.591	15541	19.8	6D	-B	2	C		64		
187 TEHR	18	1001E	1005	1009	N36	E17	.541	15543	19.7	8D	-B	2	C		127		UDE Y5
188 MEUD	18	1047	1048	1050	S29	E18	.644	15541	19.8	3	-N		C				E Y5
189 MEUD	18	1103E	1103	1107	S29	E18	.644	15541	19.8	4D	-N		C				E Y5
GRP69190	18	1523+3	1526+0	1531	N18	W53	.795	15530	14.7	8	-F						
KANZ	18	1523	1526	1530	N18	W53	.795	15530	14.7	7	-F		C				
ZURI	18	1526	1526	1532	N18	W53	.795	15530	14.7	6	-F		C	1526	50	.9	
	18	1615	1937	NO FLARE PATROL													
191 PALE	18	1932E	1932U	1942	S27	E05	.566	15541	19.2	10D	-N	3	C		25		DE Y5
	18	1953	2007	NO FLARE PATROL													
192 PALE	18	2009E	2012	2021	S17	W37	.693	15539	16.1	12D	-N	3	C		58		FDE Y5
	18	2251	2302	NO FLARE PATROL													
	18	0212	0217	NO FLARE PATROL													
	18	0226	0255	NO FLARE PATROL													
193 CULG	19	0147	0147	0150	N37	E11	.522	15543	19.9	3	-F		C	0147	20	.2	Y5
194 PALE	19	0147	0147	0150	S17	W40	.723	15539	16.1	3	-N	3	C		78		DE Y5
195 PALE	19	0235	0235	0245	S17	W40	.723	15539	16.1	10	-N	2	C		41		DE Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	SEP																	
GRP69196	19	0249	0252 0303	0312	N18	W60	.860	15530	14.6	23	-N						DH	
VORO	19	0249	0252	0302	N16	W60	.859	15530	14.6	13	-N		C	0252	63	1.2	DH	
CULG	19	0302E	0303U	0321	N20	W60	.861	15530	14.6	19D	-F		P	0303	40	.8		
197 CULG	19	0358E	0403U	0404D	S17	W42	.743	15539	16.0	6D	-N		P	0403	130	1.9	I	Y5
GRP69198	19	0358E	0414 0421	0435D	N34	W11	.480	15532	18.3	37	-N						I	
CULG	19	0358E	0421	0433D	N34	W10	.476	15532	18.4	35D	-N	*	P	0421	160	1.8	I	
MITK	19	0410E		0435D	N34	W11	.480	15532	18.3	25D	-N	*	C	0410			E	
MANI	19	0412	0414	0418D	N37	W13	.532	15532	18.2	6D	-F	2	V		80	1.0	F	
199 HTPR	19	0701	0705	0717	S17	W43	.753	15539	16.1	16	-F		C	0705	30	.4	E	Y5
200 HTPR	19	0736	0738	0750	S27	E03	.563	15541	19.5	14	-N		C	0738	60	.7	E	Y5
201 KHAR	19	1038E	1044	1058D	N16	E63	.884	0	24.2	20D	-N		P	1038	50	1.4	DH	Y5
GRP69202	19	1043+0	1044+1 1052	1056	N35	E02	.468	15543	19.6	13	-N						U	
MONT	19	1043	1045	1110D	N36	E02	.484	15543	19.6	27D	-N		C	1045	70			
HTPR	19	1043	1044	1055	N35	E03	.469	15543	19.7	12	-F		C	1044	30	.4	E	
KHAR	19	1046E		1055	N35	E03	.469	15543	19.7	9D	-N		P	1052	80	.9	D	
TEHR	19	1049	1052	1056	N38	E02	.514	15543	19.6	7	-N	2	C		95		U	
GRP69203	19	1116+2	1122+0	1142	S27	E01	.561	15541	19.5	26	-N				100	1.2	E	
HTPR	19	1116	1122	1135	S27	E02	.562	15541	19.6	19	-N		C	1122	100	1.1	E	
ZURI	19	1118	1122	1122D	S26	E00	.547	15541	19.5	4D	-N		P	1122	110	1.4		
KHAR	19	1125E	1125	1148D	S28	E01	.576	15541	19.6	23D	1N		P	1129	220	2.7	E	
204 KHAR	19	1138E		1144	N13	E32	.530	15547	21.9	6D	-F		V	1140			D	Y5
205 HTPR	19	1229	1232	1240	N14	E34	.560	15547	22.1	11	-F		C	1232	50	.6	E	Y5
206 HTPR	19	1302	1303	1308	N37	E03	.500	15543	19.8	6	-N		C	1303	40	.5	E	Y5
207 MCMA	19	1405E	1412	1430	N28	W07	.373	15536	19.1	25D	-F		C	1412	30	.4	D	Y5
GRP69208	19	1434+0	1450+0 1508	1605	S14	E62	.907	15549	24.3	91	-F						EHK	
MCMA	19	1434	1450	1605	S14	E62	.907	15549	24.3	91	-F		C	1540	50	1.2	EHK	
MCMA	19	1434	1450	1605	S14	E62	.907	15549	24.3	91	-F			1450	30	.7		
HTPR	19	1505	1508	1550	S11	E60	.886	15549	24.1	45	-F		C	1508	80	1.6	EKT	
GRP69209	19	1604+4	1611+0	1625	S21	E25	.607	15542	21.5	21	-F				25	.3	D	
HTPR	19	1604	1611	1625	S21	E25	.607	15542	21.5	21	-F		C	1611	30	.3		
MCMA	19	1608	1611	1613D	S21	E25	.607	15542	21.5	5D	-N		C	1611	20	.3	D	
GRP69210	19	1640	1652	1655	N34	W03	.454	15543	19.5	15	-F				45	.5		
HTPR	19	1640		1656D	N35	E02	.468	15543	19.8	16D	-F		C	1650	60	.7	E	
MCMA	19	1643E	1652	1654	N33	W08	.453	15543	19.1	5D	-F		C	1652	25	.3	D	
	19	1704	1706	NO FLARE PATROL														
211 HUAN	19	1727	1730	1739	N33	W08	.453	15543	19.1	12	-N	1	C	1730	40	.4		Y5
GRP69212	19	1813+1	1815	1822	N25	E57	.840	15546	24.0	9	-F							
HUAN	19	1813		1822	N26	E59	.858	15546	24.2	9	-F	1	C					
PALE	19	1814	1815	1821	N25	E56	.832	15546	24.0	7	-N	3	C		35		DE	
213 HUAN	19	1821		1825	N33	W08	.453	15543	19.2	4	-F	*	C					Y5
214 HUAN	19	1821	1834	1839	S13	E60	.890	15549	24.3	18	-F	1	C	1834	20	.4	D	Y5
215 HOLL	19	1934	1941	1957	N37	W05	.503	15543	19.4	23	-N	3	C		50		FDE	Y5
216 MCMA	19	2020E		2132D	S14	E60	.892	15549	24.3	72D	-N		C	2020	50	1.1	E	Y5
GRP69217	19	2046E	2055	2142	N33	W07	.449	15543	19.3	56	-N				110	1.2	E	
MCMA	19	2046E	2055	2132D	N33	W07	.449	15543	19.3	46D	-N		C	2055	120	1.4	E	
CULG	19	2057E	2057E	2142	N34	W07	.464	15543	19.3	45D	-N		P	2057	110	1.3	B	
GRP69218	19	2159	2205	2218	N25	W15	.389	15536	18.8	19	-F				130	1.4	E	
CULG	19	2159	2205	2221	N25	W15	.389	15536	18.8	22	-N		C	2205	110	1.2		
VORO	19	2200E		2214	N26	W16	.411	15536	18.7	14D	-F		P	2200	152	1.7	E	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69219	19	2322+1	2324+3	2343	S16	W51	.824	15539	16.1	21	-N				70	1.2	J
CULG	19	2322	2327	2347	S15	W44	.754	15539	16.7	25	-N		C	2327	60	1.1	JT
HOLL	19	2322	2324	2343	S16	W51	.824	15539	16.1	21	-N	3	C		86		F
PALE	19	2323	2324	2341	S18	W52	.840	15539	16.1	18	-N	3	C		63		DE
223 VORO	20	0336	0337	0347	N28	E54	.819	15546	24.2	11	-N		C	0337	90	1.5	E Y5
GRP69221	20	0548	0556 0606	0625	N15	E22	.390	15547	21.9	37	-N						EJ
CULG	20	0548	0606	0629	N14	E23	.401	15547	22.0	41	-N		C	0606	140	1.5	
ABST	20	0553E	0556	0625	N16	E22	.395	15547	21.9	32D	-N		P	0556	87	.9	EJ
MITK	20	0613E		0622	N15	E22	.390	15547	21.9	9D	-F		C	0613			E
GRP69222	20	0953>9	1003+4	1010	S12	E48	.782	15549	24.0	17	1N				150	2.4	J
ABST	20	0953	1003	1010	S12	E49	.792	15549	24.1	17	1N		C	1003	174	2.9	EJ
ZURI	20	0953	1005	1009	S12	E48	.782	15549	24.0	16	1N		C	1005	140	2.4	
KANZ	20	0957	1007	1012	S12	E47	.772	15549	23.9	15	-N		C				
MEUD	20	1003	1005	1007	S12	E49	.792	15549	24.1	4	-F		C				D
223 TEHR	20	1112	1116	1124	S12	E38	.674	0	23.3	12	-N	2	C		63		Y5
GRP69224	20	1217+0	1223+2	1233	S16	E47	.787	15549	24.0	16	-F						H
ZURI	20	1217E	1223	1233	S16	E48	.797	15549	24.1	16D	-F		P	1223	80	1.4	
KANZ	20	1217	1225	1232	S16	E47	.787	15549	24.0	15	-F		C				H
GRP69225	20	1349	1353	1407	N22	E43	.695	15546	23.8	18	-N				40	.6	D
ZURI	20	1349	1353	1405	N22	E45	.717	15546	24.0	16	-N		C	1353	50	.8	
MCMA	20	1352E		1408	N22	E42	.683	15546	23.7	16D	-N		C	1354	30	.4	D
226 MCMA	20	1522	1523	1530	N22	E41	.672	15546	23.7	8	-N		C	1523	30	.4	E Y5
227 MCMA	20	1617	1618	1622	N33	W21	.536	15543	19.1	5	-F		C	1618	30	.4	E Y5
228 MCMA	20	1645	1700	1830D	S13	E45	.755	15549	24.1	105D	-N		C	1700	40	.6	E Y5
229 MCMA	20	1651	1652	1655	N30	W13	.437	15543	19.7	4	-F		C	1652	25	.3	DH Y5
GRP69230	20	2000	2001	2007	N24	E39	.656	15546	23.8	7	-B				30	.4	L
HOLL	20	2000	2001	2005	N27	E41	.690	15546	23.9	5	-B	3	C		29		FDE
MCMA	20	2003E		2009	N22	E38	.636	15546	23.7	6D	-F		P	2003	30	.4	EL
	20	2023	2031	NO FLARE PATROL													
GRP69231	20	2041	2049+6	2103	S13	E43	.734	15549	24.1	22	-N						
MCMA	20	2041	2049	2102D	S13	E43	.734	15549	24.1	21D	-N		C	2049	35	.5	E
PALE	20	2054E	2055	2103	S13	E43	.734	15549	24.1	9D	-N	2	C		135		FDE
232 CULG	20	2124E	2124	2139	N35	W15	.517	15543	19.8	15D	-F		P	2124	90	1.1	Y5
GRP69233	20	2229	2230 2243	2318D	N23	W45	.720	15535	17.6	49	?N						EHILS
VORO	20 IMP.S	2229 IMP.?	2230	2318	N24	W44	.712	15535	17.6	49	N		C	2230	117	1.7	EHL
CULG	20	2237E	2243	0112	N23	W46	.730	15535	17.5	155D	2N		P	2243	350	5.3	IS
234 HOLL	20	2304	2311	2333	N39	W38	.728	15532	18.1	29	-N	3	C		22		Y5
GRP69235	20	2315+0	2318+3	2353	S12	E40	.696	15549	24.0	38	-N				110	1.5	
VORO	20	2315	2319	2343	S12	E42	.718	15549	24.1	28	-N		C	2319	134	1.9	E
HOLL	20	2315	2318	2354	S07	E37	.636	15549	23.7	39	-B	3	C		103		FDE
PALE	20	2315	2318	2357	S13	E41	.712	15549	24.0	42	-B	3	C		115		DE F
CULG	20	2319E	2321	2352D	S15	E40	.712	15549	24.0	33D	-N		P	2321	110	1.5	
GRP69236	21	0314	0317 0324	0334	N34	W24	.572	15543	19.3	20	-N				160	2.0	EJU
VORO	21	0314	0317	0335	N34	W25	.580	15543	19.3	21	1F		C	0317	197	2.4	EJ
CULG	21	0318E	0318U	0334	N34	W24	.572	15543	19.3	16D	-B		P	0318	120	1.4	
TEHR	21	0321E	0324	0327	N36	W19	.555	15543	19.7	6D	-B	2	C		95		U
GRP69237	21	0416E	0420 0443	0508	N23	E40	.664	15546	24.2	52	1B						E
TEHR	21	0416E	0420	0442	N23	E40	.664	15546	24.2	26D	1B	2	C		222		F
TACH	21	0438E	0443	0508D	N20	E37	.617	15546	24.0	30D	1B		V	0443	354	4.6	E
ABST	21	0506E	0507	0525	N26	E40	.676	15546	24.2	19D	1N		P	0507	148	2.1	BE
238 ABST	21	0557	0602	0616	S12	E39	.685	15549	24.2	19	-F		C	0602	87	1.2	DJ Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.		
	SEP																	
239 KANZ	21	0853	0858	0907	N36	W22	.577	15543	19.7	14	-F		C					Y5
240 ZURI	21	1254E	1256	1302	N14	E06	.158	15547	22.0	8D	-F		P	1256	50	.5		Y5
241 ZURI	21	1314	1322	1324D	N33	W25	.570	15543	19.7	10D	-F		P	1322	50	.6		Y5
	21	1403	1621	NO FLARE PATROL														
	21	1637	1643	NO FLARE PATROL														
	21	1653	1943	NO FLARE PATROL														
242 PALE	21	1917	1921	1927	N36	W29	.632	15543	19.6	10	-B	3	C		21		DE	Y5
	21	1953	2019	NO FLARE PATROL														
243 PALE	21	2005	2006	2053	N36	W30	.641	15543	19.6	48	-B	3	C		19		DE	Y5
	21	2022	2026	NO FLARE PATROL														
244 HUAN	21	2026E		2033D	S24	W04	.520	15542	21.6	7D	-N	1	P	2032	80	.9		Y5
	21	2033	2150	NO FLARE PATROL														
245 PALE	21	2321E	2321U	2326	N14	W01	.122	15547	21.9	5D	-N	3	C		52		FDE	Y5
GRP69246	21	2324+1	2325+0	2328	N35	W34	.667	15543	19.4	4	-N							
PALE	21	2324	2325	2329	N36	W31	.649	15543	19.7	5	-B	3	C		41		FDE	
VORO	21	2325	2325	2327	N35	W38	.703	15543	19.1	2	-N		C	2325	134	1.9		
GRP69247	22	0147+4	0152+6 0213	0235D	N35	W37	.694	15543	19.3	48	-N				40	.6		
CULG	22	0147	0158	0217D	N35	W36	.685	15543	19.4	30D	-N		P	0158	30	.4		
VORO	22	0151	0152	0201	N35	W39	.712	15543	19.2	10	-N		C	0152	45	.6	D	
VORO	22	0211	0213	0235D	N35	W39	.712	15543	19.2	24D	-N		C	0213	36	.5	D	
248 CULG	22	0209E	0209E	0217	S20	W08	.472	15542	21.5	8D	-F		P	0209	40	.5		Y5
249 ABST	22	0549	0553	0625	N34	W40	.715	15543	19.2	36	-N		C	0553	131	1.8	EJ	Y5
250 ABST	22	0552	0559	0610	N25	E54	.814	15551	26.3	18	-N		C	0559	87	1.5	DJ	Y5
GRP69251	22	0915+5	0918 0924+1	0950	N27	E53	.809	15551	26.4	35	1N				120	2.1	E	
MONT	22	0915	0924	0955	N28	E56	.837	15551	26.6	40	-N		C	0924	110		E	
ZURI	22	0916	0918	0928D	N27	E53	.809	15551	26.4	12D	1N		P	0918	160	2.8		
TEHR	22	0920	0925	0947	N27	E54	.818	15551	26.4	27	-B	1	V		127		FDE	
MEUD	22	0927E		0950	N28	E53	.811	15551	26.4	23D	-N		C				E	
GRP69252	22	1052+4	1054 1103	1110	N27	E52	.800	15551	26.4	18	1N				150	2.6		
ZURI	22	1052	1054	1106	N27	E52	.800	15551	26.4	14	1N		C	1054	200	3.6		
MEUD	22	1052		1110	N27	E51	.791	15551	26.3	18	-N		C	1055	10		E	
TEHR	22	1056	1103	1115	N27	E54	.818	15551	26.5	19	-B	1	V		127		FDE	
GRP69253	22	1128	1134	1143	N30	E49	.780	15551	26.2	15	-F				45	.7	DH	
ZURI	22	1128	1134	1140	N30	E49	.780	15551	26.2	12	-F		C	1134	60	1.0		
MCMA	22	1139E		1145	N30	E49	.780	15551	26.2	6D	-N		C	1139	30	.5	DH	
254 ZURI	22	1230	1230	1236	N27	E51	.791	15551	26.3	6	-F		C	1230	100	1.8		Y5
GRP69255	22	1240>9	1257+4	1308	N30	E48	.771	15551	26.1	28	-B				120	1.9	DH	
MCMA	22	1240	1258	1310	N30	E49	.780	15551	26.2	30	-B		C	1258	80	1.3	EH	
KANZ	22	1243	1257	1308	N30	E48	.771	15551	26.1	20	-B		C					
ZURI	22	1252	1300	1306	N30	E48	.771	15551	26.1	14	1B		C	1300	160	2.7		
WEND	22	1253E		1304D	N30	E48	.771	15551	26.1	11D	-N		V				D	
MEUD	22	1255	1301	1307	N29	E49	.777	15551	26.2	12	-N		C				DH	
GRP69256	22	1313+1	1317+1	1338	N27	E50	.781	15551	26.3	25	-F						E	
MCMA	22	1313	1317	1345D	N29	E49	.777	15551	26.2	32D	-N		C	1317	30	.5	E	
KANZ	22	1314	1318	1331	N26	E51	.788	15551	26.4	17	-F		C					
GRP69257	22	1345+6		1500D	N28	E48	.765	15551	26.2	75	-N						E	
MCMA	22	1345		1500D	N29	E49	.777	15551	26.2	75D	-N		C	1400	50	.8	E	
KANZ	22	1351		1439D	N28	E48	.765	15551	26.2	48D	-N		C					
258 MCMA	22	1415	1418	1430	N34	W43	.742	15543	19.4	15	-F		C	1418	50	.8	E	Y5
259 MCMA	22	1430E	1448	1535D	S25	W11	.556	15542	21.8	65D	-F		C	1448	150	1.8	E	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE SEP	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
260 MCMA	22	1514	1517	1535D	N29	E48	.768	15551	26.2	21D	-N		C	1517	100	1.6	E	Y5
	22	1535	1601	NO FLARE PATROL														
	22	1615	1622	NO FLARE PATROL														
261 MCMA	22	1630E		1631D	N30	E46	.753	15551	26.1	1D	-F		P	1630	25	.4	D	Y5
262 MCMA	22	1649E	1651	1657D	N27	E47	.752	15551	26.2	8D	-N		C	1651	40	.6	D	Y5
263 MCMA	22	1649E	1655	1805D	N38	W55	.852	15532	18.6	76D	-N		C	1655	60	1.2	EW	Y5
	22	1657	1703	NO FLARE PATROL														
	22	1714	1728	NO FLARE PATROL														
264 MCMA	22	1802E		1805D	N30	E46	.753	15551	26.2	3D	-N		P	1803	70	1.1	E	Y5
	22	1836	1946	NO FLARE PATROL														
265 PALE	22	1944	1948	2000	N27	E49	.772	15551	26.5	12	-N	3	C		73		FDE	Y5
	22	2034	2129	NO FLARE PATROL														
	22	0236	0328	NO FLARE PATROL														
	22	0331	0435	NO FLARE PATROL														
	22	0439	0500	NO FLARE PATROL														
GRP69266	22	2129>9	2203	2205D	S24	W15	.564	15542	21.8	36	-N						IS	
CULG	22	2129E	2310U	0245	S23	W13	.539	15542	21.9	316D	1N		P	2310	250	3.0	FIS	
VORO	22	2202	2203	2205	S26	W17	.601	15542	21.6	3	-F		C	2203	45	.5	D	
267 CULG	22	2314	2321	2325	N24	W47	.744	15536	19.4	11	-N		P	2321	30	.5		Y5
268 VORO	22	2320	2321	2328	N33	W48	.782	15543	19.4	8	-F		C	2321	27	.4	D	Y5
269 VORO	23	0109	0110	0119	N27	E42	.701	15551	26.2	10	-F		C	0110	99	1.4	J	Y5
GRP69270	23	0230	0233 0243	0404	N28	E41	.695	15551	26.2	94	-B							
PALE	23	0230	0233	0326D	N27	E44	.722	15551	26.4	56D	-B	3	C		141		FDE	
TEHR	23	0239E	0243U	0404	N29	E39	.679	15551	26.0	85D	-B	2	C		159		F	
271 CULG	23	0513	0515	0520	N36	W52	.824	15543	19.3	7	-N		C	0515	20	.3		Y5
272 CULG	23	0531	0532	0533D	S15	W35	.657	15555	20.6	2D	-N		P	0532	50	.7		Y5
273 CULG	23	0544	0549	0549D	N36	W52	.824	15543	19.3	5D	-N		P	0549	30	.5		Y5
274 ABST	23	0657	0711	0735	N26	E35	.620	15551	25.9	38	-N		C	0711	131	1.6	EJ	Y5
275 ABST	23 IMP>1	0802 NO	0805 # MEUD1	0810D	N33	W52	.815	15543	19.4	8D	?N		P	0805	131	2.2	EJ	Y5
276 KANZ	23	0907		0914D	N33	W52	.815	15543	19.5	7D	-F		C					Y5
GRP69277	23	0944+3	1000>9 1207	1215	N35	W50	.805	15543	19.7	151	3B						FLU	
MEUD	23	0944	1015	1200	N35	W47	.781	15543	19.9	136	3B		C	1015	120		U	
TEHR	23	0947	1000	1030D	N35	W50	.805	15543	19.7	43D	2B	2	V		732		U F	
LOCA	23	1000E	1010	1045D	N34	W50	.802	15543	19.7	45D	4B		S	1010	1834	32.0		
KANZ	23	1139	1207	1225	N35	W57	.858	15543	19.2	46	-N		C					
MCMA	23	1209E		1215D	N35	W50	.805	15543	19.8	6D	1N		C	1209	250	4.3	BLU	
278 KANZ	23	1219	1230	1234D	S15	W38	.690	15555	20.7	15D	-F		C					Y5
279 KANZ	23	1234		1234D	N29	E41	.700	15551	26.6		-B		C					Y5
280 MCMA	23	1401E		1417D	S15	W42	.733	15555	20.4	16D	-N		C	1414	30	.4	E	Y5
	23	1425	1455	NO FLARE PATROL														
	23	1500	1505	NO FLARE PATROL														
	23	1511	1520	NO FLARE PATROL														
	23	1544	1626	NO FLARE PATROL														
	23	1651	1659	NO FLARE PATROL														
	23	2111	2130	NO FLARE PATROL														
281 CULG	23	2130E	2131	2143	N35	W60	.879	15543	19.4	13D	-N		C	2131	50	1.0		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69282	24	0045+1	0049+2	0109	S13	E70	.953	15554	29.3	24	-B				50		E
CULG	24	0045	0051	0120	S15	E70	.955	15554	29.3	35	-B		C	0051	50		
VORO	24	0046	0049	0058	S12	E70	.952	15554	29.3	12	-B		C	0049	54		E
GRP69283	24	0207+3	0214+3 0230	0247D	N35	W60	.879	15543	19.6	40	1N						U
CULG	24	0207	0217	0337	N36	W60	.881	15543	19.6	90	2N		C	0217	250	5.7	
VORO	24	0210	0214	0247	N33	W62	.889	15543	19.4	37	1F		C	0214	242	5.1	E
PALE	24	0210E	0230	0232D	N35	W59	.872	15543	19.7	22D	1B	3	C		173		U F
VORO	24	0238	0240	0246	N34	W62	.891	15543	19.5	8	1F		C	0240	224	4.7	
284 CULG	24	0216	0241	0251	S14	W01	.359	15549	24.0	35	-N		C	0241	120	1.3	Y5
GRP69285	24	0348	0410 0418	0502	N26	E02	.327	15546	24.3	74	-N						FS
CULG	24	0348	0418	0502	N28	E04	.364	15546	24.5	74	-N		P	0418	100	1.1	S
MANI	24	0408E	0410U	0423D	N25	E00	.309	15546	24.2	15D	-N	3	V		100	1.0	F
GRP69286	24	0623E	0629+1	0705	N35	W62	.892	15543	19.6	42	2N						FJ
CULG	24	0623E	0629	0650D	N36	W62	.894	15543	19.6	27D	2B		P	0629	260	5.8	J
MANI	24	0625E	0630	0648D	N35	W60	.879	15543	19.8	23D	-N	3	V		90	1.7	F
TACH	24	0630E		0705	N35	W62	.892	15543	19.6	35D	3F		V	0633	742		CJ
287 CULG	24	0647E	0648	0650D	S14	E65	.926	15554	29.2	3D	-N		P	0648	50		Y5
288 KHAR	24	1057E		1116D	N23	W01	.276	15546	24.4	19D	-N		V	1100			DL Y5
289 KHAR	24	1122E		1127D	N22	W04	.267	15546	24.2	5D	-F		V	1122			DL Y5
290 MCMA	24	1152E		1200	N34	W68	.926	15543	19.4	8D	-F		C	1154	50	1.4	E Y5
291 MCMA	24	1204	1206	1215	S14	E64	.920	15554	29.3	11	-F		C	1206	50	1.2	E Y5
292 MCMA	24	1218	1220	1300	S14	W04	.364	15549	24.2	42	-N		C	1220	80	.9	E Y5
293 MCMA	24	1242	1252	1322	N34	W70	.937	15543	19.3	40	-F		C	1252	30	.9	E Y5
294 KANZ	24	1509	1513	1517	N28	E16	.437	15551	25.8	8	-F		C				Y5
295 MCMA	24	1559	1603	1609	S15	W55	.855	15555	20.5	10	-F		C	1603	35	.7	EH Y5
296 MCMA	24	1603	1604	1607	N38	W56	.859	15543	20.5	4	-N		C	1604	30	.6	D Y5
297 MCMA	24	1701	1702	1706	S15	W55	.855	15555	20.6	5	-F		C	1702	25	.5	D Y5
298 MCMA	24	1720	1727	1753D	N25	W07	.329	15546	24.2	33D	1B		C	1727	250	2.7	EU Y5
	24	1753	1755	NO FLARE PATROL													
299 PALE	24	1755E	1758	1837D	N25	W09	.341	15546	24.1	42D	-N	3	C		128		U F Y5
	24	1812	1836	NO FLARE PATROL													
	24	2103	2112	NO FLARE PATROL													
GRP69300	24	2110+2	2127	2251	S20	W43	.768	15542	21.7	101	-B				110	1.7	J
CULG	24	2110E	2127	2250	S20	W43	.768	15542	21.7	100D	-B		C	2127	90	1.4	
PALE	24	2112	2121U	2121D	S22	W43	.779	15542	21.7	9D	-B	3	C		127		FDE
VORO	24	2225E		2251	S20	W43	.768	15542	21.7	26D	-N		C	2226	99	1.5	DJ
	24	2131	2148	NO FLARE PATROL													
	24	2149	2159	NO FLARE PATROL													
GRP69301	24	2357+3	0000+2	0009	S14	W11	.401	15549	24.2	12	-N				60	.7	
VORO	25	0000	0002	0009	S15	W11	.415	15549	24.2	9	-N		C	0002	81	.8	E
CULG	24	2357	2400	0005D	S13	W12	.395	15549	24.1	8D	-N		P	2400	40	.4	F
302 CULG	25	0215	0249	0315	S20	E47	.804	15556	28.6	60	-F		C	0249	10	.2	Y5
GRP69303	25	0304	0306 0320	0332D	S22	W45	.796	15542	21.8	28	-F						E
MITK	25	0304	0306	0330D	S23	W45	.801	15542	21.8	26D	-F		C	0306			E
CULG	25	0306E	0320	0332D	S21	W46	.800	15542	21.7	26D	-F		P	0320	80	1.4	
304 HURB	25	1327E	1333	1349D	N35	W45	.765	0	22.2	22D	-N		V				Y5
	25	1748	1752	NO FLARE PATROL													

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
	SEP																	
305 MCMA	25	1807E		1810D	N15	W55	.814	15547	21.6	3D	-F		C	1809	30	.5	E	Y5
306 MCMA	25	2022	2024	2030D	S13	E45	.754	15554	29.2	8D	-N		C	2024	25	.4	E	Y5
307 VORO	26	0108	0112	0118	N33	W90	.998	15543	19.3	10	-N		C	0112	36			Y5
GRP69308	26	0725+1	0727+0	0737	S15	W75	.976	15555	20.7	12	-F				40		D	
HTPR	26	0725	0727	0736	S15	W70	.955	15555	21.1	11	-F		C	0727	40	.9		
MONT	26	0726	0727	0737	S15	W80	.991	15555	20.3	11	-F		C	0727	40		D	
GRP69309	26	0737+3	0743+1 0752	0810	N14	W59	.851	15547	21.9	33	1N				180	3.5	F	
KANZ	26	0737	0744	0815	N16	W59	.851	15547	21.9	38	1B		C					
MONT	26	0737	0743	0804	N14	W59	.851	15547	21.9	27	-N		C	0743	180			
HTPR	26	0739	0744	0810	N14	W61	.868	15547	21.7	31	1B		C	0740	140	2.8	E	
BUCA	26	0740		0815	N15	W60	.860	15547	21.8	35	1N		C	0743	214	4.2		
ISTA	26	0740		0756	N15	W58	.842	15547	22.0	16	-N						F	
TEHR	26	0746E	0752	0753D	N14	W58	.842	15547	22.0	7D	1B	2	C		222		F	
310 HTPR	26	0758	0800	0805	S12	E40	.695	15554	29.3	7	-F		C	0800	20	.3		Y5
GRP69311	26	0930+3	0936+1	1010	N20	W17	.359	15560	25.1	40	-N				70	.8	E	
HTPR	26	0930	0936	1010	N19	W18	.363	15560	25.0	40	-N		C	0936	70	.7	E	
KANZ	26	0932	0937	1010	N20	W17	.359	15560	25.1	38	-N		C					
MONT	26	0933	0936	0958	N20	W16	.347	15560	25.2	25	-N		C	0936	80			
WEND	26	0946E		1015	N20	W17	.359	15560	25.1	29D	1N		V		300	3.4	E	
GRP69312	26	1108+5	1114+7	1137	S18	W31	.636	15549	24.1	29	-N						E	
HTPR	26	1108	1114	1135	S19	W31	.644	15549	24.1	27	-N		C	1114	50	.6	E	
ZURI	26	1113	1121	1137	S18	W32	.646	15549	24.1	24	-F		C	1121	140	2.0		
KANZ	26	1113	1118	1148	S16	W31	.620	15549	24.1	35	-N		C					
313 KHAR	26	1226	1227	1238D	S19	W34	.674	15549	24.0	12D	-F		V	1226			E	Y5
GRP69314	26	1228	1243	1303	N35	W89	.997	15543	19.8	35	-F						H	
KANZ	26	1228	1243	1303	N37	W90	.997	15543	19.8	35	-F		C					
KHAR	26	1245E		1255D	N34	W88	.995	15543	19.9	10D	1F		V	1245			H	
315 KANZ	26	1344	1349	1407	N31	W04	.412	15551	26.3	23	-F		C					Y5
316 KANZ	26	1407	1407	1441	S17	W34	.659	15549	24.0	34	-F		C					Y5
317 HUAN	26	1914		1923	S20	W35	.691	15549	24.2	9	-F	1	C					Y5
	26	2000	2005	NO FLARE PATROL														
318 PALE	26	2010	2010	2012	S19	W38	.714	15549	24.0	2	-N	3	C		19		DE	Y5
319 MCMA	26	2015E	2028	2101D	N31	W08	.426	15551	26.2	46D	-N		C	2028	50	.6	EKW	Y5
	26	2101	2210	NO FLARE PATROL														
	26	0241	0242	NO FLARE PATROL														
320 VORO	26	2217E		2250	N28	W07	.376	15551	26.4	33D	1N		C	2228	251	2.7	EJ	Y5
GRP69321	27	0725		0836	S18	W80	.992	15542	21.3	71	1F						D	
BUCA	27	0725		0836	S20	W80	.993	15542	21.3	71	1F		C	0741	161			
KHAR	27	0810E		0835D	S17	W80	.992	15542	21.3	25D	1F		P	0815	100		D	
GRP69322	27	0742E	0746	0756	N14	W70	.934	15547	22.1	14	?N						E	
TACH	27	0742E		0756	N15	W72	.945	15547	21.9	14D	F		V	0742	421		E	
	IMP.2 IMP.S																	
TEHR	27	0743E	0746	0754D	N14	W69	.927	15547	22.1	11D	-B	2	C		127			
GRP69323	27	0818+7	0830+9 0849	0912	N30	W16	.463	15551	26.1	54	1N				250	2.8	EHJ	
KHAR	27	0818E	0833	0926D	N28	W16	.438	15551	26.1	68D	1N		P	0835	440	5.1	EH	
HTPR	27	0818	0835	0905	N29	W15	.442	15551	26.2	47	-B		C	0835	180	2.0	E	
ISTA	27	0820		0853	N30	W16	.463	15551	26.1	33	-N			0832			F	
MONT	27	0823	0830	0935	N30	W14	.448	15551	26.3	72	1N		C	0830	250			
BUCA	27	0825		0922	N30	W18	.479	15551	26.0	57	1B		C	0841	322	3.7		
TEHR	27	0835E	0839	0903	N30	W17	.471	15551	26.1	28D	-B	2	C		159		F	
ABST	27	0847E	0849	0905	N30	W15	.455	15551	26.2	18D	-N		P	0849	174	1.9	EJ	
324 HTPR	27	1202	1207	1220	S31	E90	1.002	15564	4.3	18	-N		C	1207	50		A	Y5
325 MCMA	27	1328	1330	1340	S13	E23	.505	15554	29.3	12	-F		C	1330	30	.4	E	Y5

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
	SEP																	
GRP69326	27	1428+4	1442+3	1546	N27	W19	.454	15551	26.2	78	2B				650	7.3	LUVY	
MCMA	27	1428	1445	1704D	N27	W20	.464	15551	26.1	156D	2B		C	1445	750	9.1	YFLUV	
HTPR	27	1432	1442	1546	N27	W19	.454	15551	26.2	74	2B		C	1442	550	6.3	E	
HUAN	27	1451E		1516D	N22	W18	.391	15551	26.3	25D	1N	1	P	1456	280	3.2	U	
HERS	27	1456E	1456	1524	N29	W21	.495	15551	26.0	28D	1B		P	1508	161	3.3	U	
GRP69327	27	1700+4	1705+2 1727+0	1825	N30	W20	.497	15551	26.2	85	1B						EKU	
PALE	27	1700E	1727	1825	N30	W21	.506	15551	26.1	85D	2B	3	C		602		U F	
PALE	27	1700E	1705	1825	N30	W21	.506	15551	26.1	85D	1N	3	C		215		U F	
MCMA	27	1704	1727	1734D	N30	W20	.497	15551	26.2	30D	1B		P	1707	170	2.0	EK	
MCMA	27	1704	1707	1734D	N30	W20	.497	15551	26.2	30D	1B							
HUAN	27	1719E		1740D	N29	W20	.486	15551	26.2	21D	1N	2	P	1726	210	2.5	E	
328 PALE	27	1813	1814	1824	N39	E54	.849	15557	1.8	11	-N	3	C		36		UDE	Y5
329 PALE	27	1843	1844	1905	N28	W22	.495	15551	26.1	22	-B	3	C		48		FDE	Y5
	27	2123	2125	NO FLARE PATROL														
	27	2132	2158	NO FLARE PATROL														
	27	2211	2236	NO FLARE PATROL														
	27	2338	0249	NO FLARE PATROL														
330 TEHR	28	0400	0404	0435	N39	E48	.806	15557	1.8	35	-B	2	C		127		F	Y5
331 ABST	28	0744	0751	0803	N21	W44	.705	15560	25.0	19	-F		C	0751	96	1.4	D	Y5
332 ABST	28	1040	1043	1050	N21	W44	.705	15560	25.1	10	1F		C	1043	174	2.6	DJ	Y5
333 MCMA	28	1402E		1402D	N29	W39	.680	15551	25.7		-N		P	1402	50	.7	D	Y5
	28	1405	1406	NO FLARE PATROL														
	28	1450	1451	NO FLARE PATROL														
	28	1520	1522	NO FLARE PATROL														
GRP69334	28	1810+1	1811+2	1823	N28	W34	.622	15551	26.2	13	-F				30	.4		
MCMA	28	1810	1813	1821	N27	W36	.638	15551	26.1	11	-F		C	1813	40	.5	E	
PALE	28	1811	1811U	1824	N30	W32	.615	15551	26.4	13	-N	3	C		21		FDE	
GRP69335	28	1831>9	1849+3	1858	N39	E37	.722	15557	.5	27	-N				60	.9		
PALE	28	1831	1849	1857	N39	E39	.738	15557	1.7	26	-N	3	C		66		FDE	
HOLL	28	1841	1852	1858	N40	E35	.714	15557	1.4	17	-N	3	C		42			
MCMA	28	1847E		1852D	N36	E37	.702	15557	1.6	5D	-F		P	1847	70	1.0	E	
336 MCMA	28	2052E		2100D	N36	E36	.694	15557	1.6	8D	-F		P	2058	70	1.0	E	Y5
337 CULG	28	2139U	2154U	2233U	S15	W70	.955	15549	23.7	54D	-F		C	2154	60		T	Y5
GRP69338	28	2209+4	2220+3	2247	N37	E34	.684	15557	.5	38	-F				60	.8		
HOLL	28	2209	2223	2233	N40	E33	.695	15557	1.4	24	-N	3	C		48			
CULG	28	2213	2220	2300	N35	E35	.678	15557	1.6	47	-F		P	2220	70	1.0		
339 CULG	28	2316	2323	2331D	S32	E58	.924	15564	3.3	15D	-N		P	2323	30			Y5
340 CULG	29	0200	0216	0243	S13	W80	.990	15549	23.1	43	-F		C	0216	50		T	Y5
341 VORO	29	0211	0213	0218	N37	E34	.685	15557	1.6	7	-N		C	0213	143	1.9	J	Y5
342 CULG	29	0317	0352U	0443D	S13	W80	.990	15549	23.1	86D	-F		C	0352	40		T	Y5
343 CULG	29	0426	0429	0443D	N36	E33	.669	15557	1.7	17D	-N		P	0429	100	1.3		Y5
344 TEHR	29	0450	0456	0504	N39	E37	.723	15557	2.0	14	-B	2	C		127			Y5
345 ABST	29	0632	0634	0640	N37	E33	.676	15557	1.7	8	-N		C	0634	131	1.7	EJ	Y5
GRP69346	29	0942+8	0954+3	1010	N31	W40	.701	15551	26.4	28	1N						EHJU	
KHAR	29	0942E	0957	1020D	N32	W41	.716	15551	26.3	38D	1N		P	0950	330	5.0	EH	
HTPR	29	0943	0954	1008	N29	W40	.691	15551	26.4	25	-N		C	0954	160	2.0	E	
KANZ	29	0944	0955	1009	N32	W40	.706	15551	26.4	25	1B		C				UF	
ABST	29	0945	0954	1010	N30	W43	.725	15551	26.2	25	1N		C	0954	174	2.5	EJ	
TEHR	29	0950	0954	1005	N29	W38	.671	15551	26.6	15	-B	2	C		159		F U	
ATHN	29	0954E	0954D	1002	N32	W38	.687	15551	26.6	8D	-N	2		0954	66	.8		
ZURI	29	0958E	0958	1024	N31	W40	.701	15551	26.4	26D	1B		P	0958	350	5.0		

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS
	DATE	START	MAX PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR AREA Sq. Deg.	
	SEP																
GRP69347	29	1046+3	1054+5 1121	1244	S31	E55	.904	15564	2.6	118	1N						EKO
KANZ	29	1046	1057	1308	S31	E55	.904	15564	3.6	142	1B		C				
HTPR	29	1046	1059	1215	S31	E61	.936	15564	4.0	89	1N		C	1059	140	2.8	EK
ZURI	29	1047	1121	1155D	S30	E54	.895	15564	3.5	68D	2N		P	1121	370	9.0	
TEHR	29	1049	1054	1227	S32	E50	.878	15564	3.2	98	1B	2	C		254		F
KHAR	29	1115E		1236D	S32	E55	.908	15564	3.6	81D	2N		P	1120	440	11.2	EO
MCMA	29	1217E		1405	S33	E56	.916	15564	3.7	108D	1N		P	1228	150	3.8	E
GRP69348	29	1333+3	1335+2 1345	1355	N37	E27	.628	15557	.6	22	-N				80	1.0	W
ZURI	29	1333	1337	1349	N38	E27	.638	15557	1.6	16	-F		C	1337	100	1.3	
HTPR	29	1334	1335	1350	N37	E27	.628	15557	1.6	16	-F		C	1335	30	.4	E
MCMA	29	1334	1335	1412	N37	E27	.628	15557	1.6	38	-N		C	1335	80	1.1	EFW
KANZ	29	1334	1345	1359	N35	E25	.593	15557	1.4	25	-N		C				
RAMY	29	1336	1337	1355	N38	E30	.661	15557	1.8	19	-B	4	C		75		F
GRP69349	29	1341+0	1341+1	1351	N29	W43	.721	15551	26.3	10	-F						
KANZ	29	1341	1341	1355	N30	W43	.725	15551	26.3	14	-F		C				
RAMY	29	1341	1342	1347	N28	W44	.727	15551	26.3	6	-N	4	C		23		
GRP69350	29	1341+2	1345+0	1400	S11	E79	.987	15570	4.5	19	-F						E
KANZ	29	1341	1345	1359	S11	E74	.969	15570	5.1	18	-F	*	C				
MCMA	29	1341	1345	1400	S14	E82	.994	15570	5.7	19	-F	*	C	1345			E
ZURI	29	1343	1345	1355D	S11	E79	.987	15570	5.5	12D	1N	*	P	1345	80		
GRP69351	29	1502+2	1504+2	1512	N39	E29	.662	15557	.8	10	-B				50	.7	
HTPR	29	1502	1504	1512	N39	E31	.677	15557	2.0	10	-N		C	1504	50	.7	E
RAMY	29	1503	1506	1517	N38	E29	.653	15557	1.8	14	-B	3	C		63		F
HOLL	29	1504	1506	1511	N40	E24	.637	15557	1.4	7	-B	3	C		35		
GRP69352	29	1656+4	1704+3 1743+0	1751	N37	E22	.591	15557	.4	55	-B				90	1.1	E
RAMY	29	1656	1704	1807	N38	E28	.645	15557	1.8	71	-B	3	C		40		
RAMY	29	1656	1743	1807	N38	E28	.645	15557	1.8	71	-F	3	C		90		
HOLL	29	1700	1707	1714	N40	E23	.630	15557	1.4	14	-N	3	C		30		
MCMA	29	1715E		1751D	N36	E21	.573	15557	1.3	36D	-N		C	1745	120	1.5	E
HUAN	29	1718		1727	N35	E16	.527	15557	30.9	9	-F	1	C				
HOLL	29	1741	1743	1751	N40	E23	.630	15557	1.5	10	-B	3	C		62		
353 HOLL	29	1754	1756	1802	N40	E23	.630	15557	1.5	8	-B	3	C		43		H Y5
	29	2004	2011	NO FLARE PATROL													
	29	2033	2035	NO FLARE PATROL													
	29	2054	2059	NO FLARE PATROL													
GRP69354	29	2124+0	2130+0	2137	N39	E23	.619	15557	.6	9	-N				45	.6	F
RAMY	29	2128	2130	2137	N38	E26	.630	15557	1.8	9	-N	2	C		47		
HOLL	29	2128	2130	2136	N40	E21	.618	15557	1.5	8	-N	3	C		43		F
GRP69355	29	2201+2	2205+1	2234	N37	E21	.584	15557	.5	33	-N				140	1.7	F
HOLL	29	2201	2205	2235	N40	E21	.618	15557	1.5	34	-B	3	C		156		F
CULG	29	2203	2206	2232	N35	E21	.562	15557	1.5	29	-N		C	2206	130	1.6	
356 VORO	30	0252	0254	0258	N28	W52	.804	15551	26.2	6	-F		C	0254	45	.7	D Y5
357 HTPR	30	0804	0807	0813	N32	W58	.861	15551	26.0	9	-N		C	0807	30	.6	E Y5
358 HTPR	30	0840	0840	0845	N28	W57	.846	15551	26.1	5	-F		C	0840	20	.4	Y5
359 HTPR	30	1010	1012	1018	N28	W56	.838	15551	26.2	8	-F		C	1012	20	.4	E Y5
360 HTPR	30	1058	1106	1125	S16	E66	.935	15570	5.4	27	-F		C	1106	80	1.9	EK Y5
GRP69361	30	1503+1	1507	1516	S16	E70	.956	15570	4.9	13	-F						F
RAMY	30	1503	1507	1510	S17	E67	.942	15570	5.7	7	-N	2	C		39		F
HUAN	30	1504		1521	S16	E74	.973	15570	6.2	17	-F	1	C				
362 HOLL	30	1519	1520	1523	N17	E70	.933	15569	5.9	4	-F	4	C		14		Y5
363 RAMY	30	1522	1524U	1526	S10	W90	1.000	15549	23.9	4	-B	3	C				Y5
364 HUAN	30	1626E		1630D	S08	E67	.930	15570	5.7	4D	-F	1	P	1628	20		D Y5
365 RAMY	30	1714	1716	1730	S38	E64	.963	0	5.5	16	-F	3	C				F S Y5
366 CULG	30	2326	2338	0012	S15	E59	.886	15570	5.4	46	?F		C	2338	100	2.3	Y5
	IMP.1 NO HOLL1																

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

SEPTEMBER 1978

DAILY FLARE INDICES
Includes all Flares

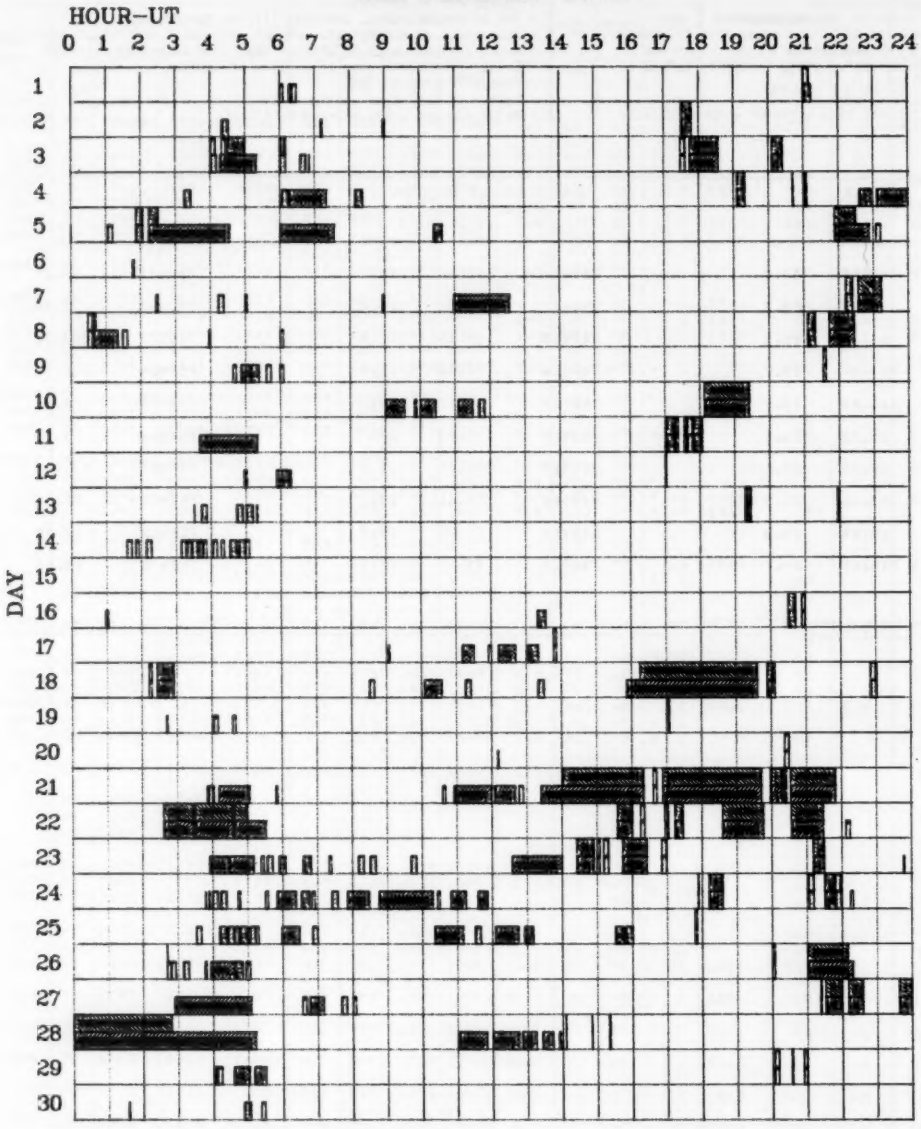
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
780901	102.47	23.9	780911	10.89	23.2	780921	73.55	17.1
780902	175.82	23.7	780912	22.01	24.0	780922	73.96	18.7
780903	86.89	21.9	780913	15.85	23.8	780923	2348.82	22.1
780904	189.97	23.7	780914	27.08	24.0	780924	171.74	23.0
780905	119.57	22.9	780915	45.42	24.0	780925	9.50	23.9
780906	78.70	24.0	780916	552.42	23.7	780926	73.02	22.8
780907	40.23	23.1	780917	369.76	23.9	780927	330.46	19.9
780908	53.60	22.9	780918	59.46	19.7	780928	23.91	23.9
780909	15.68	23.9	780919	77.35	24.0	780929	49.52	23.8
780910	136.57	22.7	780920	50.19	23.9	780930	11.61	24.0

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

SEPTEMBER 1978



Observatories included in total patrol:

Abastumani	Herstmonceux	Kanzelhohe	McMath-Hulbert	Tashkent
Athenes	Holloman	Kharkov	Meudon	Tehran
Bucharest	Huancayo	Kiev	Mitaka	Upice
Catania	Hurbanovo	Locarno	Monte Mario	Voroshilov
Culgoora	Istanboul	Lvov	Palehua	Wendelstein
Haute Provence	Kandilli	Manila	Ramey	Zürich

Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	200	GORK	43	NS	0300 E		420		5		
	100	GORK	43	NS	0656		184		5		
	260	ONDR	44	NS	0730 E		475 D	13			
	245	SGMR	44	NS	1030 E	1749.5	570 D	67.5			3,5,CONT
	410	SGMR	44	NS	1030 E	1438.5	570 D	99.5			3,5,CONT
	237	TRST	41	F	0622.8	0622.9	.1	165			0
	536	ONDR	3	S	0819.1	0819.1	.2	15			
	1420	ARCE	4	S/F	0830.8	0831.6	1.7				
	1470	BERL	4	S/F	0831	0831.9	1.5	17			
	650	GORK	41	F	0831	0834.6	8	10			
	650	GORK			0831	0838.6		8			
	950	GORK	6	S	0831.5	0831.9	1.1	14	7		
	808	ONDR	42	SER	0831	0933.7	74	75			
	1420	ARCE	1	S	0834.6	0834.8	.5				
	9100	ARCE	40	F	0922.9	0923	4				
	536	ONDR	8	S	0933.6	0933.6	.2	50			
	33	UPIC	2	S/F	1026.3	1026.7	.8				
	29	UPIC	3	S	1026.4	1026.8	.6				
	9400	HUAN		S	1136.4	1140.5	12.1	8.2	3.7		0
	3100	CRIM	1	S	1235	1235.5	2	8	3		
	2800	OTTA	23	GRF	1235	1630	505	8.2	4.4		
	1415	SGMR	1	S	1240.3	1242.5	4.7	2.9	.9		
	1420	ARCE	2	S/F	1240.7	1242.3	5				
	2695	SGMR	1	S	1241.6	1242.6	3.1	6.7	2		
	2800	OTTA	2	S/F	1241.8	1242.4	3	6.4	3		
	4995	SGMR	1	S	1242	1242.4	2.9	7.6	2.3		
	3100	CRIM	1	S	1242	1242.5	5	13	4		
	9400	HUAN		S	1242	1251.4	16.7	6.6	3.3		L
	9100	ARCE	20	GRF	1242.1	1243	17				
	8900	BERN	3		1309.2	1311.3	66	21			
	10400	BERN	3		1309.2	1311.3	66	21			
	8400	BERN	3		1309.2	1311.3	66	21			
	9500	BERL	3	S	1310	1311	2.5	18			
	9400	HUAN		S	1310	1311.2	1.8	21.3	9.6		L
	9100	ARCE	4	S/F	1310.2	1311.6	3				
	2800	OTTA	1	S	1311	1311.3	1	2.6	1.6		
	15000	KISV	40	F	1320	1321	6	16			
	2800	OTTA	1	S	1429.5	1430.1	1	2.2	1		
	2800	OTTA	1	S	1437.8	1438.2	1	1.8	.9		
	9400	HUAN		S	1439.6	1444.3	19.1	8.2	2.6		0
	9400	HUAN		S	1627.8	1645.3	33.8	6.6	2.1		0
	9400	HUAN		F	1710	1711.5	4.4	32.8	16.2		L
	8400	BERN	46		1710.6	1711.5	7	33			
	10400	BERN	46		1710.6	1711.5	7	24			
	8900	BERN	46		1710.6	1711.5	7	30			
	1415	SGMR	3	S	1710.7	1713.2	4.9	52.3	15.7		
	15400	SGMR	3	S	1710.8	1711.5	3	24.5	7.3		
	2800	OTTA	4	S/F	1710.8	1712	5.5	28.8	12.6		
	606	SGMR	1	S	1711.7	1713.2	3.7	6.3	1.9		
	9400	HUAN		S	1821.2	1903	74.6	9.8	3.8		0
	4995	SGMR	3	S	1835.2	1835.7	1.7	13.3	4		CONT
	2800	OTTA	3	S	1835.2	1835.5	1	20.8	7		
	245	SGMR	6	S	1835.5	1836	1.5	63.6	19.1		CONT
	1415	SGMR	3	S	1835.6	1835.9	1.4	12.7	3.8		CONT
	606	SGMR	3	S	1835.7	1835.8	.6	36.3	10.9		CONT
	2695	SGMR	3	S	1835.7	1835.8	1.3	14.4	4.3		CONT
	410	SGMR	6	S	1835.8	1836	1	124	37.2		CONT
	1420	BOUL	1	S	1835	1835.5	1	8	3		
	2695	PENT	8	S	2013.7	2013.7	.1E	2.6			
	1420	BOUL	40	F	2112.5U	2142.5	57.5U	6	2		
	2800	OTTA	240	R	2145	2202	17	3	1.6		
	9400	HUAN		C	2221.3	2225	6.2	64	27.9		L
	4995	BOUL	2	SF	2221	2224	6.5	44	15		
	2800	OTTA	4	S/F	2222.8	2225	5	12.4	5.6		
	4995	MANI	3	S	2223.5	2225.3	3	72.7	24.2		
	2695	MANI	3	S	2223.5	2225.3	3	8.3	3.2		
	8800	MANI	3	S	2224.3	2225	2.2	41.4	13.8		
2	5730	IRKU	2	S	0337.8	0338.2	8	13	4		L
	200	GORK	44	NS	0357 E		360		5		
	100	GORK	44	NS	0357 E		207		15		
	260	ONDR	44	NS	0704 E		476 D	94			
	100	GORK	43	NS	0802		118		10		
	245	SGMR	44	NS	1030 E	1451.1	570 D	336			SWF
	410	SGMR	44	NS	1030 E	1528.7	570 D	71.6			3S,4,CONT,
	9100	GORK	21	GRF	0527		27		24		
	3100	CRIM	1	S	0528.5	0530	6	12	4		
	8900	BERN	3		0541.4	0542.1	75	34			
	8900	BERN	4		0541.4	0552.8	75	695			
	8400	BERN	3		0541.4	542.1	75	38			
	8400	BERN	4		0541.4	552.8	75	750			
	10400	BERN	3		0541.4	542.1	75	42			
	10400	BERN	4		0541.4	552.8	75	680			
	9100	GORK	3	S	0542	0542.2	.4	50	25		

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SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	15000	KISV	8 S	0546	0547	2	35			
	950	GORK	40 F	0546.8	0603.5	42	41			
	950	GORK		0546.8	0620		18.5			
	950	GORK		0546.8	0616.7		20			
	950	GORK		0546.8	0605.5		21			
	3100	CRIM	29 PBI	0548.5	0559	181	22	7		
	3100	CRIM	47 GB	0548.5	0552 U	11	66 D	22		
	5730	IRKU		0548	0553.1	12	388			L
	2695	MANI	4 S/F	0549.4	0553.9	9.6	105.4	35.1		
	2950	GORK	3 S	0550	0553 U	7	127			
	2950	GORK	29 PBI	0550	0557	30	19	7		
	9100	GORK	3 S	0550.4	0553	6.6	2800			
	8800	MANI	47 GB	0550.5	0553.1	16.8	790	263.9		
	4995	MANI	3 S	0550.7	0553.2	7.5	345.4	115.1		
	35000	NAGO	5 S	0551	0552.5	4	44			
	15000	KISV	8 S	0555	0558	25	113			
	35000	NAGO	29 PBI	0555	0558	65	22			
	930	BORD	40 F	0558 E	0603.3	59	50	7		SUNRISE
	650	GORK	40 F	0602.1	0603.4	5.5	8.5			
	1415	MANI	3 S	0603.3	0603.6	.8	27.9	9.3		
	606	MANI	2 S/F	0603.3	0603.5	.5	9.9	3.3		
	650	GORK	2 SF	0616.3	0619.6	3.3	6.5	2		
	8900	BERN	45	0811.4	0822.1	28	15			
	8900	BERN	45	0811.4	0835.1	28	13			
	8400	BERN	45	0811.4	812.9	28	15			
	10400	BERN	45	0811.4	812.9	28	12			
	8400	BERN	45	0811.4	812.9	28	13			
	10400	BERN	45	0811.4	835.1	28	13			
	8400	BERN	45	0811.4	835.1	28	12			
	10400	BERN	45	0811.4	822.1	28	14			
	8400	BERN	45	0811.4	822.1	28	17			
	9100	ARCE	21 GRF	0811.8	0813.4	20.				
	9100	GORK	21 GRF	0812	0813.4	24	13	6.5		
	9500	BERL	3 S	0822	0822.7	3	13			
	9100	ARCE	3 S	0822.4	0823	2				
	3000	BERL	3 S	0822.5	0822.8	4.5	7.4			
	9100	GORK	1 S	0822.5	0822.9	.8	21	10.5		
	3100	CRIM	1 S	0822.5	0823	3	6	2		
	15000	KISV	45 C	0825.5	0826	4	12			
	1420	ARCE	40 F	0831.8	0833.1	3.5				
	930	BORD	46 C	0832	0834	4	208	6		
	808	ONDR	4 S/F	0832	0834.1	4	75	7.5		
	9100	ARCE	2 S/F	0834.9	0835.1	1				
	9100	GORK	1 S	0834.9	0835	.4	14	7		
	9100	GORK	20 GRF	0853.2	0855.1	10.7	11	7		
	1420	ARCE	25 R	0905.9		70.5				
	29	UPIC	45 C	0905.9	0906.6	6.2				
	33	UPIC	45 C	0906.2	0906.2	4.8				
	930	BORD	41 F	0906	0908.4	3	54	2		
	408	TRST	7 C	0932.6	0932.6	.1	310			
	9100	ARCE	1 S	1008.8	1009.1	.7				
	1420	ARCE	1 S	1009.4	1009.5	.5				
	33	UPIC	42 SER	1026.6	1037.6	27.1				
	29	UPIC	42 SER	1026.6	1038	26.9				
	10400	BERN	8	1050.9	1053.5U	6 U	11 U			
	8400	BERN	8	1050.9	1053.5	6	27			
	8900	BERN	8	1050.9	1053.5	6	23			
	9100	ARCE	21 GRF	1051	1057.1	97				
	9100	ARCE	3 S	1053	1053.6	3.2				
	33	UPIC	40 F	1114.9	1146.4	113.8				
	29	UPIC	40 F	1117	1146.7	111.4				
	1470	BERL	20 GRF	1120	1130	21	2.4			
	3000	BERL	20 GRF	1125	1140	37	11			
	9500	BERL	20 GRF	1125	1133	46	22			
	8900	BERN	22	1126	1133.7	73	44			
	10400	BERN	22	1126	1133.7	73	21			
	8400	BERN	22	1126	1133.7	73	44			
	9100	ARCE	20 GRF	1128	1135	32				
	2800	OTTA	20 GRF	1130	1136	75	6.4	3.2		
	1470	BERL	4 SF	1251.8	1252.5	3.2	16			
	3000	BERL	3 S	1251.8	1252.5	1.4	65			
	9500	BERL	1 S	1252.5	1252.9	.8	9.6			
	1420	ARCE	4 S/F	1252.6	1253.1	2.5				
	8900	BERN	3	1252.6	1254	2.5	18			
	10400	BERN	3	1252.6	1254	2.5	15			
	8400	BERN	3	1252.6	1254	2.5	18			
	2800	OTTA	4 S/F	1252.7	1253.5	1.5	60	25		
	1415	SGMR	3 S	1252.8	1253.3	4.1	35.3	14.1		CONT
	3000	BERL	21 GRF	1252	1506	143 D	11			
	9500	BERL	21 GRF	1252	1433	143 D	25			
	2695	SGMR	3 S	1253	1253.8	4	41.5	16.6		CONT
	4995	SGMR	3 S	1253	1253.7	4	16.2	6.5		CONT
	606	SGMR	3 S	1253.2	1254	1.6	71.8	28.7		CONT
	9100	ARCE	1 S	1253.6	1253.9	.9				
	2650	DWIN	45 C	1253	1253.5	1	80	20		

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	2800	OTTA	29 PBI	1254.2	1254.2	7	3.2	1.8		
	9500	BERL		1306.4	1309.2	3.6	19			
	9400	HUAN	F	1306.8	1310.2	6.2	16.6	6.4		L
	10400	BERN	3	1307	1308.1	8.5	17			
	8400	BERN	3	1307	1308.1	8.5	16			
	10400	BERN	3	1307	1310.2	8.5	18			
	8400	BERN	3	1307	1310.2	8.5	21			
	8900	BERN	3	1307	1310.2	8.5	15			
	8900	BERN	3	1307	1308.1	8.5	14			
	9100	ARCE	40 F	1307.4	1335.8	37				
	2800	OTTA	1 S	1307	1308	2	2.4	1.2		
	3000	BERL	3 S	1308.6	1309.2	1.4	13			
	2800	OTTA	1 S	1310	1310	1	4.4	2.2		
	10400	BERN	23	1332	1335.1	12	16			
	8400	BERN	23	1332	1335.1	12	16			
	8900	BERN	23	1332	1335.1	12	17			
	3000	BERL	3 S	1332.5	1334	2.5	12			
	9500	BERL	3 S	1333	1334	2	19			
	9400	HUAN	F	1333	1335.2	3.8	11.6	7		L
	2800	OTTA	2 S/F	1334	1335	4	3.8	1.2		
	9400	HUAN	S	1356.8	1450	133.4	24.9	12.7		L
	9100	ARCE	21 GRF	1418	1426.6	97.5				
	8900	BERN	3	1420.4	1423.8	65	50			
	8900	BERN	45	1420.4	1438.5	65	38			
	10400	BERN	45	1420.4	1438.5	65	35			
	8400	BERN	45	1420.4	1438.5	65	43			
	10400	BERN	3	1420.4	1423.8	65	41			
	8400	BERN	3	1420.4	1423.8	65	60			
	4995	BOUL	3 S	1420.5	1423	7	56	19		
	9400	HUAN	S	1420.6	1423.8	4.6	59.8	26.4		L
	9500	BERL	3 S	1421.8	1422.6	2.7	57			
	2800	OTTA	21 GRF	1421		20	3	1.5		
	3000	BERL	3 S	1422	1422.7	2	21			
	9100	ARCE	4 S/F	1422.1	1424	4				
	8800	SGMR	45 C	1422.4	1438.5		65.9			
	8800	SGMR	45 C	1422.4	1423.6	29.6	78.1	31.2		
	4995	SGMR	45 C	1422.4	1423.5	29.6	76.2	30.5		
	4995	SGMR	45 C	1422.4	1438.4		59.5			
	2695	SGMR	20 GRF	1422.5	1423.8	29.5	6.5	2.4		
	2800	OTTA	1 S	1423	1424	3	8.4	4		
	9500	BERL	4 S/F	1436	1437.5	4	51			
	3000	BERL	3 S	1436.5	1437.2	2.5	12			
	9100	ARCE	4 S/F	1436.9	1438.7	7				
	9400	HUAN	S	1437.1	1438.5	6	43.2	15.4		O
	2800	OTTA	21 GRF	1437	1513	80	3.2	1.6		
	2800	OTTA	2 S/F	1438	1438.5	4	3	1.5		
	3000	BERL	3 S	1449	1449.5	1	22			
	1470	BERL	3 S	1449.5	1450	1	6.2			
	2800	OTTA	4 S/F	1450.1	1450.7	1	15.4	7.5		
	1420	ARCE	3 S	1450.3	1450.7	1				
	930	BORD	45 C	1450.6	1450.9	1	15	2		
	237	TRST	41 F	1450.7	1450.9	.6	612			O
	1420	BOUL	1 S	1450	1450.5	1	7	2		
	2800	OTTA	1 S	1500.8	1501	1	2.4	1.2		
	237	TRST	41 F	1500.9	1501.1	.5	510			10R
	1420	ARCE	40 F	1520.3	1521.3	10				
	930	BORD	41 F	1528.3	1528.7	.7	81	4		
	2800	OTTA	8 S	1528.5	1528.7	.5	2	1		
	930	BORD	41 F	1558.7	1558.7	.3	42	2		
	2800	OTTA	20 GRF	1635	1650	80	3.2	2		
	9400	HUAN	S	1807.6	1810.1	5.2	13.3	4.2		L
	2800	OTTA	1 S	1809.2	1810	2	2.4	1.2		
	2800	OTTA	21 GRF	1809	1815	50	3.6	1.8		
	9400	HUAN	S	1837.5	1847	16.7	8.3	3.7		O
	4995	SGMR	3 S	1902.3	1905.8	6.4	45.6	13.7		
	4995	BOUL	4 SF	1902	1905.5	6.5	35	12		
	8800	SGMR	3 S	1904.9	1905.8	3.6	50.2	15.1		
	9400	HUAN	S	1905 E	1905.7U	8	61.4	21.6		L
	2695	SGMR	3 S	1905.2	1906.4	3.8	19.8	5.9		
	15400	SGMR	3 S	1905.5	1905.9	2.2	18.1	5.4		
	1415	SGMR	1 S	1905.6	1905.8	3.4	1.8	.5		
	1420	BOUL	2 SF	1905	1906	2	2	1		
	2800	OTTA	3 S	1905	1906.2	3.5	22.2	7.4		
	2800	OTTA	29 PBI	1908.5	1908.5	11	4.4	2		
	2800	OTTA	21 GRF	1930	2021	110	6.4	3		
	9400	HUAN	S	2006	2007.7	6.1	24.9	7		L
	2800	OTTA	1 S	2007	2008	2	6.4	3		
	1420	BOUL	1 S	2007	2007.5	1	7	2		
	2800	OTTA	3 S	2020	2020.4	1	13	6.5		
	2800	OTTA	20 GRF	2045	2046.7	12	6.4	2.2		
3	100	GORK	44 NS	0400 E		60		5		
	203	GORK	44 NS	0400 E		390		5		
	202	IZMI	43 NS	0500		420	55			
	260	ONDR	44 NS	0700 E		507 D	182	9		

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SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	100	GORK	43	NS	0705		210		5		
	29	UPIC	43	NS	0849.2	1307.2	359.5				
	33	UPIC	43	NS	0849	1306.9	359.7				
	245	SGMR	44	NS	1030 E	1838.7	570 D	621			3G,CONT
	410	SGMR	44	NS	1030 E	1121.7	570 D	59.7			3G,CONT
	8900	BERN	23		0644.1	0650.3	13	11			
	10400	BERN	23		0644.1	650.3	13	10			
	8400	BERN	23		0644.1	650.3	13	16			
	9100	GORK	3	S	0644.4	0650.8	11	21	8		
	5730	IRKU			0644.5	0655.2		5			L
	5730	IRKU			0644.5	0650.5		12			L
	5730	IRKU	1	S	0644.5	0646.9	12	5	4		L
	234	POTS	2	S/F	0710.5	0714.5	8.5	450	5		
	228	HARS	45	C	0713.3	0714.6	2.2	400	100		
	8900	BERN	3		0731.6	0733.6	7	12			
	10400	BERN	3		0731.6	733.6	7	10			
	8400	BERN	3		0731.6	733.6	7	14			
	3000	BERL	1	S	0732	0733	3	5.4			
	1470	BERL	1	S	0732.5	0733	3.5	3.7			
	3100	CRIM	1	S	0732.5	0733	3	9	3		
	5730	IRKU	1	S	0732.8	0733.2	14	11	4		L
	5730	IRKU			0732.8	0737.9		7			L
	9500	BERL	1	S	0733	0733.3	1	6.6			
	2950	GORK	1	S	0733	0733.5	2.6	13	5		
	9100	GORK	3	S	0733	0736.4	12	15	7.5		
	234	POTS	48	C	0824.5	0833	8.9	350			
	8900	BERN	20		0831.2	0844.4	40	6			
	10400	BERN	20		0831.2	844.4	40	9			
	8400	BERN	20		0831.2	844.4	40	6			
	234	POTS	2	S/F	0847.6	0851.4	5	670	50		
	228	HARS	45	C	0851.2	0851.4	1	820	250		
	1470	BERL	20	GRF	0925	0952.5	34	3			
	3000	BERL	1	S	0929.5	0930.7	21	3.9			
	9500	BERL	1	S	0929.5	0930	25	8			
	10400	BERN	1		0929.5	930.3	34	10			
	8400	BERN	1		0929.5	930.3	34	11			
	8900	BERN	1		0929.5	0930.3	34	10			
	9100	GORK	3	S	0929.8	0930.5	16.7	15.5	5		
	9100	ARCE	22	GRF	0930	0930.5	26				
	408	TRST	2	S	0956.4	0956.4	.1	240			
	113	POTS	45	C	1150	1335	201 D	56			
	234	POTS	48	C	1201	1222	22	420			
	245	SGHR	7	S	1212.2	1213	2.8	406	162		CONT
	9400	HUAN		S	1241	1317	85.6	8.3	5.4		0
	3000	BERL	20	GRF	1251	1324	47	7.1			
	1470	BERL	40	F	1252	1305	37	14			
	9400	HUAN		S	1440.2	1454.7	47.3	5	3.2		0
	113	POTS	45	C	1446.8	1447.6	1.1	280	40		
	9400	HUAN		S	1603.1	1613.6	51.5	10	4.8		R
	2800	OTTA	26	FAL	1625	1850	145	-10	-4		
	9400	HUAN		S	1914.3	1944.5	74.5	13.3	9.3		0
	2800	OTTA	20	GRF	1923	1925	14	1.8	1		
	200	HIRA	44	NS	2015 E	0138	770 D	45	10		ML
	100	HIRA	43	NS	2230	0340	635 D	300	50		ML
	2800	OTTA	240	R	2015	2033	18	3.4	1.7		
	2800	OTTA	21	GRF	2040	2215	175	6.8	3.6		
	2800	OTTA	8	S	2111.7	2111.7	.1E	15			
	2800	OTTA	8	S	2120	2120.5	.9	1.8	.9		
	2695	PENT	21	GRF	2343	2359	72	5	2.8		
	2695	PENT	1	S	2355	2356	2	4.2	2.1		
4	500	HIRA	46	C	0157.8	0158.4	2	15	5		ML
	200	GORK	44	NS	0400 E		510		10		
	100	GORK	44	NS	0400 E		510		60		
	202	IZMI	44	NS	0500		420	50			
	260	ONDR	44	NS	0600 E		552 D	145	10		
	29	UPIC	43	NS	0654.7		605.3D				
	33	UPIC	43	NS	0654.9		605.1D				
	410	SGMR	44	NS	1030 E	1641.2	570 D	234			3G,5,CONT
	245	SGMR	44	NS	1030 E	1833.9	570 D	237			3G,5,CONT
	127	TORN	44	NS	1030 E		250 D		60		V1
	3100	CRIM	29	PBI	0535	0640		16	5		
	9100	GORK	3	S	0627.6	0631.6	44.4	16	8		
	536	ONDR	4	S/F	0716.3	0716.3	.5	63			
	8900	BERN	20		0802.5	0804.7	88	8			
	8900	BERN	20		0802.5	0819.6	88	35			
	10400	BERN	20		0802.5	819.6	88	34			
	8400	BERN	20		0802.5	819.6	88	40			
	10400	BERN	20		0802.5	804.7	88	6			
	8400	BERN	20		0802.5	804.7	88	9			
	650	GORK	21	GRF	0803.7	0821	56.7	11.5	3.5		
	237	TRST	41	F	0803.7	0803.8	.2	205			0
	9100	GORK	21	GRF	0803.8	0830	89	37	18		
	9100	ARCE	21	GRF	0804.2	0833.9	95				
	1420	ARCE	8	S	0806.8	0806.9	.5				

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SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	234	POTS	45	C	0810.5	0827.6	60	320			
	2950	GORK	21	GRF	0810.7	0828.8	29	38			
	808	ONDR	28	PRE	0810	0812.5	6	32	17		
	536	ONDR	41	F	0810	0814.5	53	56	11		
	1470	BERL	4	S/F	0811	0818.3	72	96			
	1420	ARCE	28	PRE	0811.4	0815.1	4.7				
	200	HIRA	46	C	0811.5	0829	50 D	500 U	150 U		WR,SUNSET
	237	TRST	47	GB	0811.6	0826.5	20.5	437			11R
	230	GORK			0811.7	0829 U		2000			
	200	GORK	45	C	0811.7	0821.6	24	2000			
	500	HIRA	46	C	0811.8	0814	15	90	15		0
	930	BORD	45	C	0811	0818.5	38	51	10		
	9500	BERL	20	GRF	0812	0820	108	29			
	3000	BERL	4	S/F	0812.5	0817.5	68	101			
	950	GORK	23	GRF	0812.5	0827	48	23			
	3100	CRIM	47	GB	0813	0818.5	19	95	32		
	3100	CRIM	29	PBI	0813	0832	67	16	5		
	228	HARS	45	C	0813.8	0814	1	180	50		
	650	GORK			0813.8	0815.3		15	7.5		
	650	GORK	40	F	0813.8	0814.1	1.7	21	10		
	2695	MANI	4	S/F	0813.8	0819.3	11.7	90	26.7		
	1415	MANI	4	S/F	0813.8	0819.3	11.9	86.7	28.9		
	2650	OWIN	45	C	0813	0819	17	110	50		
	2950	GORK	4	SF	0814	0819.1	5	140			
	4995	MANI	4	S/F	0815.2	0819.3	12.3	56.8	18.9		IG
	113	POTS	45	C	0815.2	0817.6	29	4200			
	33	UPIC	49	GB	0815.5	0818.5	33.3				
	100	GORK			0815.6	0833.8		9000			
	100	GORK			0815.6	0818.8		9000			
	100	GORK	45	C	0815.6	0816.7	19	2500			
	29	UPIC	49	GB	0815.7	0834.3	29.6				
	1420	ARCE	3	S	0816.1	0818.8	8.8				
	808	ONDR	46	C	0816	0821	15.5	62	14		
	100	HIRA	46	C	0816	0820	50 D	5000 U	1000 U		0,SUNSET
	202	IZMI	45	C	0817	0823	14	1100	390		
	228	HARS	47	GB	0817.3	0828.2	13	510	200		
	228	HARS			0817.3	0826.8		400			
	228	HARS			0817.3	0822.7		270			
	229	HARS			0817.3	0821.3		270			
	9100	ARCE	20	GRF	0817	0819.8	8				
	1420	ARCE	29	PBI	0825.3	0826.5	39				
	606	MANI	4	S/F	0825.7E	0829.7	13.5D	28.9	9.6		IG
	650	GORK	1	S	0826.2	0827.2	1.6	6	3		
	808	ONDR	29	PBI	0832		18	14	10		
	9100	ARCE	20	GRF	0957.7	0958.1	36				
	200	GORK	20	GRF	1009.5	1010 U	2.1	200	20		
	200	GORK			1042	1044.4		200			
	200	GORK	41	F	1042	1042	3.4	200			
	9100	ARCE	2	S/F	1053.1	1053.4	1				
	237	TRST	41	F	1135.4	1135.5	.1	155			2L
	9400	HUAN		S	1245.2	1251.3	53.3	9.9	6.3		R
	10400	BERN	20		1247.5	1250.7	73 U	8 U			
	9100	ARCE	20	GRF	1248.7	1250.8	63.5				
	9500	BERL	20	GRF	1249	1251	26	6.6			
	237	TRST			1250.1	1250.9		175			0
	237	TRST	42	SER	1250.1	1250.5	3.2	130			0
	237	TRST			1250.1	1253.9		195			0
	9400	HUAN		S	1401	1428.5	46.6	6.6	4.4		0
	237	TRST	41	F	1412.9	1412.9	.2	65			0
	237	TRST	47	GB	1433.1	1436.3	18.5	225			70L
	4995	BOUL	3	S	1555.5	1608.5	34.5	63	21		
	2800	OTTA	4	S/F	1555	1610	34	92	32		
	930	BORD	45	C	1556	1610	35	56	23		
	18	MCMA	41	F	1556	1608	52			2	
	4995	SGMR	3	S	1557.2	1609.5	42.8	64.7	25.9		CONT
	18	MCMA	6	S	1557	1559	4			1	
	7000	SAOP	3	S	1558			41			26L
	606	SGMR	3	S	1558	1608	42	57.5	23		CONT
	2695	SGMR	3	S	1558.9	1608.9	41.1	117	46.8		CONT
	1420	BOUL	3	S	1558	1608	22	79	26		
	10400	BERN	20		1600	1612.1	62	21			
	410	SGMR	6	S	1600	1611.7	40	77.2	30.9		CONT
	1415	SGMR	3	S	1600	1611	40	86.7	34.7		CONT
	8800	SGMR	20	GRF	1600.1	1609.5	39.9	31.8	12.7		CONT
	1420	ARCE	4	S/F	1600.8	1609.5	35.5				AT SUNSET
	2695	BOUL	3	S	1601	1611	47	117	39		
	15400	SGMR	20	GRF	1603	1611	37	8.7	3.5		CONT
	9100	ARCE	20	GRF	1603.9	1610.2	29				
	2800	OTTA	29	PBI	1629	1629	110	11.8	5.9		
	2695	PENT	8	S	2013.5	2013.9	.6	5.6	2.8		
	2800	OTTA	20	GRF	2015	2058	75	5.8	2.6		
	100	HIRA	44	NS	2020 E	0220	755 D	580	55		SL
	200	HIRA	44	NS	2020 E	0215	755 D	140	55		HL
5	234	POTS	45	C	0632.1	0632.2	.5	300	75		

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	3100	CRIM	1	S	0825	0826	1.5	3	1		
	3100	CRIM	1	S	0843	0844	2	6	2		
	234	POTS	45	C	0953.5	0953.9	.7	420	45		
	9400	HUAN		S	1257.5	1302.7	14	10.1	4.1		R
	2800	OTTA	20	GRF	1520	1600	90	2.6	1.3		
	9100	ARCE	2	S/F	1526.5	1527.3	3				
	18	MCMA	6	S	1540	1543	5			1	
	1420	ARCE	2	S/F	1556.8	1557.3	.9				
	237	TRST	41	F	1556.9	1557	.2	650			16L
	410	SGMR	6	S	1557	1557.6	.8	132	39.6		5
	245	SGMR	7	S	1557.1	1557.2	.2	361	108		5
	18	MCMA	6	S	1641	1645	11			1	
	2800	OTTA	1	S	1950.5	1951	1	1.8	.9		
	2800	OTTA	22	GRF	2007	2025	55	2.6	1.4		
	100	GORK	44	NS	0400 E		540		40		
	200	GORK	44	NS	0400 E		540		45		
	202	IZMI	44	NS	0500		420	200			
	127	TORN	44	NS	0610 E	1034.6	520 D	150	45		V2
	260	ONDR	44	NS	0640 E		512 D	84	15		
	33	UPIC	43	NS	0656.5		567.4				
	29	UPIC	43	NS	0717.6	0925 U	545.9				
	245	SGMR	44	NS	1030 D	1700.3	570 D	843			5,CONT
	410	SGMR	44	NS	1030 D	1750.8	570 D	71.3			5,CONT
	100	HIRA	44	NS	2020 E	0010	755 D	500	160		SL
	200	HIRA	44	NS	2020 E	0020	755 D	90	65		SL
	2695	PENT	1	S	2127	2129	7	1.6	.8		
	2695	PENT	1	S	2207	2207.2	1.5	1.6	.8		
	2695	PENT	21	GRF	2236	2316	155	9			
	2695	PENT	46F	C	2243	2252	11	13.6	6.4		
6	500	HIRA	27	RF	0000 E	0010 U	55 D	30 U	10 U		SL
	700	SYDN	8	S	0022.5	0022.8	.5				
	1400	SYDN	45	C	0148.5	0150	3				
	8800	MANI	3	S	0220.2	0221.2	1.8	232.9	77.6		
	700	SYDN	4	S	0220.3	0221.5	1.5				
	1400	SYDN	3	S	0220.4	0221.5	6.8				
	5730	IRKU	2	S	0220.5	0221.2	6	64			L
	4995	MANI	3	S	0220.5	0221.2	2.6	71.6	23.9		
	1415	MANI	3	S	0220.6	0221.3	1.6	27.9	9.3		
	100	GORK	44	NS	0400 E		540		10		
	202	IZMI	44	NS	0500		420	80			
	200	GORK	44	NS	0515 E		465		15		
	127	TORN	44	NS	0610 E	1250.8	520 D	290	32		V2
	260	ONDR	44	NS	0642 E		506 D	155	8		
	245	SGMR	44	NS	1030 E	1224.3	570 D	404			5,CONT
	410	SGMR	44	NS	1030 E	1038.9	570 D	59.7			5,CONT
	3100	CRIM	3	S	0610	0617.5	20	24	8		
	3100	CRIM	29	PBI	0610	0630	80	12	4		
	237	TRST	41	F	0649.7	0649.9	.3	335			3L
	29	UPIC	42	SER	0824.5	0956	167.9				
	33	UPIC	42	SER	0824.6	1014 U	166.5				
	9100	ARCE	20	GRF	0826.4	0828.4	16				
	8900	BERN	22		0826.5	0840.1	54	19			
	10400	BERN	22		0826.5	840.1	54	29			
	8400	BERN	22		0826.5	840.1	54	17			
	9100	GORK	20	GRF	0827.2	0828.5	17.8	16.5	6		
	536	ONDR	2	S/F	1038.3	1038.7	1	21	2.8		
	408	TRST	45	C	1038.4	1038.7	.8	150			
	10400	BERN	1		1101	1108.3	17	14			
	8400	BERN	1		1101	1108.3	17	10			
	8900	BERN	1		1101	1108.3	17	11			
	3100	CRIM	1	S	1107	1109	6	6	2		
	3000	BERL	20	GRF	1107.5	1110	45	5			
	9100	ARCE	21	GRF	1107.5	1108.9	26				
	9500	BERL	21	GRF	1107	1110.3	34	12			
	7000	SAOP	21	GRF	1109						
	7000	SAOP	3	S	1109	1124.2		29.3			0
	7000	SAOP	21	GRF	1109						
	9500	BERL	3	S	1121	1122	5	44			
	15000	KISV	8	S	1121	1122	2	37			
	9400	HUAN		S	1121.3	1122.5	3.4	43.5	14.1		R
	9100	ARCE	3	S	1121.8	1122.4	4				
	8900	BERN	3		1122.1	1124.1	67	50			
	10400	BERN	3		1122.1	1124.1	67	60			
	8400	BERN	3		1122.1	1124.1	67	56			
	9100	GORK	3	S	1122.2	1122.7	4.2	32	2.5		
	9400	HUAN		S	1140	1145.5	14.6	8.1	2.7		0
	9400	HUAN		S	1214	1219.5	9.8	9.7	4.6		0
	7000	SAOP			1249.4						
	9400	HUAN		S	1257.8	1330.3	79.9	11.3	4.4		R
	9500	BERL	20	GRF	1301	1331	89	8			
	1420	BERL	21	GRF	1301	1330	61	1.8			
	3000	BERL	21	GRF	1310	1328.8	65	5.8			
	4995	SGMR	3	S	1313	1315.4	7.5	12.3	3.7		
	2695	SGMR	3	S	1313.2	1315.5	9.7	12.4	3.7		

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SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	3000	BERL	4 S/F	1313.8	1315.2	4.2	12			
	2800	OTTA	3 S	1314.5	1315.2	4	14.8	3.8		
	1470	BERL	4 S/F	1315	1315.5	1.5	3			
	808	ONDR	3 S	1322.4	1322.4	.2	38			
	930	BORD	8 S	1322	1322.3	.7	38	2		
	2800	OTTA	20 GRF	1324	1333	35	2	1		
	237	TRST	5 S	1334.6	1334.6	.1	125	37		0
	9400	HUAN	S	1441	1450	18.7	6.4	2.6		0
	7000	SAOP	24 R	1445.5						
	7000	SAOP	2 S/F	1445.5	1451.4		17.7			0
	7000	SAOP	21 GRF	1445.5						
	10400	BERN	3	1450.8	1451.4	6	16			
	8400	BERN	3	1450.8	1451.4	6	17			
	8900	BERN	3	1450.8	1451.4	6	15			
	9400	HUAN	S	1451	1451.5	1.8	12.9	6.7		R
	2800	OTTA	22 GRF	1545		90	3	1.5		
	930	BORD	41 F	1606	1607.8	3	27	2		
	10400	BERN	3	1613	1613.6	1	9			OPR
	2800	OTTA	3 S	1726	1726.1	1	14	3.6		
	18	MCMA	6 S	1757	1800	3			1	
	2800	OTTA	2 S/F	1758.8	1759.5	2	4.4			
	2800	OTTA	20 GRF	1909		65	2.6	1.3		
	9400	HUAN	S	1932.7	1934.6	4	11.3	5.4		R
	7000	SAOP	2 S/F	1934.6	1935.6	.5	21.2			0
	200	HIRA	44 NS	2020 E	0310	755 D	30	10		MR
	2800	OTTA	20 GRF	2120	2140	35	2	1		
	2695	PENT	21 GRF	2325	2340	85	7.2	3.6		
	2695	PENT	1 S	2331	2332.5	3	6.4	3.2		
7	200	GORK	44 NS	0351 E		246		5		
	100	GORK	44 NS	0400 E		240		15		
	127	TORN	44 NS	0610 E		520 D		3.9		V1
	260	ONDR	44 NS	0640 E		512 D	91	6		
	33	UPIC	43 NS	0656.6	1206.4	439.1				
	29	UPIC	43 NS	0656.6		439.4				
	410	SGMR	44 NS	1030 E	1537.2	570 D	99.4			3S,5
	245	SGMR	44 NS	1030 E	1810	570 D	208			3S,5
	5730	IRKU		0440	0441	7	21			R
	29	UPIC	4 S/F	0549.2	0549.3	.7				
	33	UPIC	4 S/F	0549	0549.1	.6				
	9100	GORK	21 GRF	0602.9	0608.5	22	12	4.5		
	3100	CRIM	29 PBI	0603	0612		5			
	3100	CRIM	3 S	0603	0605.5	9	16	5		
	9100	GORK	46 C	0603.4	0604.7	4.7	32			
	9100	GORK		0603.4	0606.9		25			
	8900	BERN	46	0603.4	0604.8	12	34			
	8400	BERN	46	0603.4	604.8	12	34			
	10400	BERN	46	0603.4	604.8	12	33			
	5730	IRKU	45 C	0603	0604	12	24			R
	5730	IRKU		0603	0607.1		25			R
	5730	IRKU		0603	0604.9		31			R
	9100	GORK	1 S	0650.7	0651	1	8	4		
	202	IZMI	41 F	1048	1048.5	1	68			
	408	TRST	8 S	1119.6	1119.6	.1	150	49		
	408	TRST	7 C	1205.8	1206.3	.8	130			
	3000	BERL	1 S	1205.8	1206.4	1	5.6.			
	410	SGMR	6 S	1206	1206.6	.8	172	51.6		5
	606	SGMR	1 S	1206.2	1206.5	.6	4.6	1.4		5
	4995	SGMR	1 S	1206.2	1206.3	.3	4.5	1.4		5
	245	SGMR	6 S	1206.3	1206.4	.2	25	7.5		5
	2695	SGMR	1 S	1206.3	1206.6	.5	3.1	.9		5
	536	ONDR	3 S	1206.3	1206.3	.4	8	1.1		
	1415	SGMR	1 S	1206.4	1206.5	.3	2.8	.8		5
	2800	OTTA	8 S	1206	1206.4	.7	7.2	3.6		
	245	SGMR	6 S	1220	1221.2	3	208	62.4		3S,5
	113	POTS	45 C	1220.3	1221	1.7	140	20		
	234	POTS	45 C	1220.8	1221	1.7	175	20		
	536	ONDR	2 S/F	1220.8	1221.3	1	18	4.2		
	606	SGMR	1 S	1221	1221.3	.5	7.6	2.3		3S,5
	410	SGMR	6 S	1221.1	1221.6	.9	136	40.9		3S,5
	234	POTS	48 C	1318.2	1320.9	5.2	210	4		
	113	POTS	48 C	1318.2	1320.8	5.2	700	20		
	606	SGMR	3 S	1320.8	1322.8	2.7	60.8	12.3		3S,5
	245	SGMR	7 S	1320.9	1321.1	.7	296	88.9		3S,5
	410	SGMR	7 S	1320.9	1321.1	.5	313	93.8		3S,5
	536	ONDR	41 F	1321.2	1321.2	3	49			
	9400	HUAN	S	1354.8	1500.3	92.4	9.7	4		0
	2800	OTTA	24 R	1444	1450	6	2.6	1.3		
	2800	OTTA	27 RF	1444		101	2.6	2.3		
	2800	OTTA	24P R	1450		80	2.6			
	2800	OTTA	26 FAL	1610	1625	15	-2.6	-1.3		
	237	TRST	41 F	1629.7	1629.7	.2	170			2R
	2800	OTTA	1 S	1748.7	1759.3	4	1.8	.9		
	2800	OTTA	20 GRF	1844	1846	12	2.6	1.3		
	2800	OTTA	20 GRF	1910	1935	40	2.2	1.1		

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	2800	OTTA	20	GRF	2025	2045	115	4	2		
	2695	BOUL	45	C	2112.5	2114	2	87	29		
	200	HIRA	48	C	2322	2352	62	500	100		WL
	200	HIRA			2322	2342.5		300			WL
	500	HIRA	48	C	2330	2351.6	29	255	100		WL
	500	HIRA			2330	2346.3		70			WL
	500	HIRA			2330	2338.5		60			WL
	100	HIRA	48	C	2334.5	2336	61	40000	500		
	2800	OTTA			2338		25				
	18	MCMA	6	S	2345	2348	7			1	
	606	MANI	4	S/F	2349	2351.3	6.8	70.7	23.6		
	2695	MANI	3	S	2349.7	2352.3	7.9	30.4	10.1		
	1415	MANI	3	S	2350.3	2352.4	6	30.5	10.2		
8	200	HIRA	43	NS	0130	0445	445 D	35	15		MR
	100	HIRA	43	NS	0325	0440	330 D	40	20		MR
	100	GORK	44	NS	0400 E		300		5		
	200	GORK	44	NS	0403 E		330		10		
	202	IZMI	44	NS	0500		420	77			
	260	ONDR	44	NS	0645 D		504 D	47	3		
	127	TORN	44	NS	0710 E	1205.9	360 U	70	4.1		V1
	245	SGMR	44	NS	1030 E	1516.9	570 D	284			3,5,CONT
	410	SGMR	44	NS	1030 E	1335.3	570 D	19.8			3,5,CONT
	500	HIRA	27	RF	0300	0518	170	10	4		SR
	3100	CRIM	40	F	0722	0724	14	9	3		
	1420	ARCE	4	S/F	1249.8	1253.4	5.3				
	6100	KISV	8	S	1251	1253	4	23 D			
	4995	SGMR	3	S	1251.1	1252.8	5.9	14.1	4.2		
	3100	CRIM	3	S	1251.5	1252.5	11	35	12		
	2800	OTTA	3	S	1251.8	1253	6	27	7		
	930	BORD	42	SER	1251.8	1254.5	5.2	79	2		
	1415	SGMR	3	S	1251.9	1253.2	8.3	22.3	6.7		
	15000	KISV	2	S/F	1252	1254	3	14			
	9500	BERL	3	S	1252	1252.5	3	15			
	8800	SGMR	3	S	1252.3	1252.9	2.5	19.6	5.9		
	2695	SGMR	3	S	1252.5	1253.2	4.5	27.6	8.3		
	8900	BERN	20		1252.5	1252.9	12	17			
	8400	BERN	20		1252.5	1252.9	12	21			
	10400	BERN	20		1252.5	1252.9	12	14			
	1470	BERL	3	S	1252.5	1253.5	2.5	11			
	3000	BERL	3	S	1252.5	1253.5	2.5	25			
	9100	ARCE	1	S	1252.8	1253.3	2.5				
	2650	DWIN	3	S	1252	1253	3	30	15		
	9400	HUAN		S	1257.5E	1257.5U	32.2	10.4	4.6		0
	9400	HUAN		S	1409.8	1415.5	12.6	6.9	2.4		R
	237	TRST	41	F	1516.7	1516.8	.2	365			11R
	2800	OTTA	20	GRF	1620	1625	20	2	1.2		
	237	TRST	41	F	1625.6	1626	.7	300			0
	2800	OTTA	21	GRF	1810	1900	100	6.8	3.4		
	2800	OTTA	1	S	1824.5	1825	3	7	3.5		
	245	SGMR	7	C	1830	1854.7		39.1			3G,SWF
	245	SGMR	7	C	1830	1839.2	31	53.1	15.9		3G,SWF
	1415	SGMR	20	GRF	1834.5	1839.5	20.9	9.4	2.8		3G,SWF
	4995	BOUL	4	SF	1834	1840.5	18	49	16		
	4995	SGMR	3	S	1835.2	1841	25.6	50.2	15.1		3G,SWF
	2695	SGMR	3	S	1835.5	1844.2	29.2	36.4	10.9		3G,SWF
	2800	OTTA	4	S/F	1835	1844	21	33	18		
	18	MCMA	6	S	1835	1842	13			2	
	606	SGMR	20	GRF	1836.7	1839.8	23.7	15.7	4.7		3G,SWF
	8800	SGMR	3	S	1836.9	1841	23.7	33	9.9		3G,SWF
	410	SGMR	7	C	1837.1	1840.6	24	19.6	5.9		3G,SWF
	410	SGMR	7	C	1837.1	1854.8		26.8			3G,SWF
	200	HIRA	44	NS	2020 E	0105	755 D	35	5		MR
9	200	GORK	44	NS	0506 E		234		5		
	260	ONDR	44	NS	0715 E		495 D	24			
	410	SGMR	44	NS	1030 E	1522.7	570 D	14.4			
	245	SGMR	44	NS	1030 E	1414.6	570 D	58.4			
	7000	SAOP	1	S	1142.5	1144	.8	8.5			42L
	6100	KISV	3	S	1143	1144	2	11			
	6100	KISV	3	S	1222	1223	3	3			
	9400	HUAN		S	1312	1330	33.4	4.8	2.6		R
	2800	OTTA	21	GRF	1455	1645	170	5	2.4		
	9400	HUAN		S	1527.6	1530.4	6	6.5	2.7		0
	2800	OTTA	2	S/F	1551.4	1552.3	2	2.6			
	1420	ARCE	2	S/F	1557.4	1600	4.4				
	9100	ARCE	2	S/F	1559.4	1600.4	2.6				
	2800	OTTA	20	GRF	1910	1930	35	1.4	.7		
10	260	ONDR	44	NS	0630 E		530 D	44			
	410	SGMR	44	NS	1030 E	1733.5	570 D	26.9			
	245	SGMR	44	NS	1030 E	1730.3	570 D	187.7			
	33	UPIC	3	S	0931	0931.1	.6				
	29	UPIC	3	S	0931	0931.1	.4				
	7000	SAOP	4	SF	1140.6	1148.4	.2	32.3			8L

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	2800	OTTA	21 GRF	1140	1155	80	6.2	3.1		
	3000	BERL	4 S/F	1148	1148.8	35	24			
	1470	BERL	1 S	1148.2	1149	9.8	4.5			
	1420	ARCE	1 S	1148.2	1149.2	3.5				
	9100	ARCE	1 S	1148.5	1149	6.5				
	2800	OTTA	3 S	1148	1149	4	15.8	7.9		
	9500	BERL	20 GRF	1148	1207.4	32	7.8			
	9400	HUAN	S	1455.4	1515.5	58.3	6.5	3.4		R
	2800	OTTA	1 S	1607.7	1608.2	1	1.2	.6		
	2800	OTTA	1 S	1629	1629.5	2	1.4			
	2800	OTTA	21 GRF	1720	1732	30	3	1.5		
	2800	OTTA	1 S	1723	1723.5	1	1.4	.7		
	228	HARS	45 C	1728.5	1729.5	2.5	150	40		
	2800	OTTA	1 S	1758	1800.5	3	1.6	.8		
	9400	HUAN	S	1916.8	1930.2	22	9.7	3.7		R
	9400	HUAN	S	2023.6	2030	15.8	4.9	2.5		R
11	260	ONDR	44 NS	0620 E		536 D	24			
	127	TORN	43 NS	0900 U	1057.2	340 D	30	2.9		V1
	410	SGMR	44 NS	1030 E	1627	570 D	24.6			3
	245	SGMR	44 NS	1030 E	1437.6	570 D	49.7			3
	9100	ARCE	1 S	0939.1	0939.3	.5				
	9100	ARCE	1 S	0954.6	0954.8	.6				
	2800	OTTA	20 GRF	1155	1210	65	2.4	1.2		
	9400	HUAN	S	1313	1343.6	58.8	6.9	2.8		R
	2800	OTTA	1 S	1653	1654	2	2.2	1		
	2695	PENT	20 GRF	2250		110	2.6	2		
12	260	ONDR	44 NS	0650 E		500 D	23			
	410	SGMR	44 NS	1030 E	1305.7	570 D	28.9			
	245	SGMR	44 NS	1030 E	1106.4	570 D	42.4			
	127	TORN	45 C	0719.9	0720.7	2.2	78	9		
	33	UPIC	8 S	1142.6	1142.7	.5				
	29	UPIC	8 S	1142.6	1142.8	.4				
	930	BORD	41 F	1504.6	1505	.4	17	2		
	2695	PENT	20 GRF	2255		65	2.6	1.3		
13	9100	ARCE	22 GRF	0719.2	0720	50				
	33	UPIC	2 S/F	0916.5	0916.9	.9				
	29	UPIC	2 S/F	0916.7	0917.1	.6				
	9100	ARCE	1 S	1226	1226.3	3				
	9400	HUAN	S	1251.3	1259.4	15.7	8.1	4.6		0
	9400	HUAN	S	1321.8	1345.6	65.4	4.8	2.9		R
	245	SGMR	43 NS	1517.8	1557.4	282.20	40.3			
	2800	OTTA	240 R	1750	1810	20	2.6	1.3		
	9400	HUAN	S	1758.7	1815	34	6.5	4.6		0
	9400	HUAN	S	1906.8	1907.4	1.2	14.8	7.3		L
	2800	OTTA	1 S	1948	1948.3	2	2.8	1.4		
	2800	OTTA	22 GRF	2025	2110	105	3.4	1.7		
14	260	ONDR	43 NS	0720		468 D	28			
	127	TORN	43 NS	0910 U	0946.2	100 U	44	2.1		V2
	245	SGMR	44 NS	1030 E	1342.6	570 D	49.2			
	2800	OTTA	20 GRF	1158	1205	50	2.6	1.8		
	930	BORD	41 F	1247.5	1247.5	.6	20	2		
	9400	HUAN	S	1251.4	1342.5	100.4	9.2	5.1		0
	2800	OTTA	20 GRF	1300	1350	150	4.2	2.4		
	2800	OTTA	20 GRF	1600	1805	205	4.2	2.4		
	9400	HUAN	S	1742	1800.5	26.7	6.1	4.8		0
	2800	OTTA	240 R	2100	2120	20	1.8	.9		
	2695	PENT	240 R	2200	2235	35	2.6	1.3		
15	260	ONDR	44 NS	0645 E		490 D	27			
	410	SGMR	44 NS	1030 E	1217.7	570 D	137			
	245	SGMR	44 NS	1030 E	1607.4	570 D	40.3			
	9100	ARCE	21 GRF	0945.3	0950.5	45				
	8900	BERN	3	0946.5	0947.6	2	18			
	8400	BERN	3	0946.5	947.6	2	21			
	10400	BERN	3	0946.5	947.6	2	16			
	9100	GORK	20 GRF	0947.2	0947.9	38.5	13	4		
	9100	ARCE	1 S	0947.5	0947.9	1.4				
	9500	BERL	3 S	0947.5	0947.7	2	13			
	7000	SAOP	24 R	1338.2						0
	9400	HUAN	S	1433.2	1443.7	35.6	7.3	3.1		R
	9400	HUAN	S	1441.2	1441.6	.8	9.1	6.4		R
	9400	HUAN	S	1734.4	1750.1	61.3	5.5	3.6		0
	9400	HUAN	C	1821.5	1822	1.2	18.3	10.7		R
	7000	SAOP	3 S	1821.6	1822.1	.8	15.2			0
	9400	HUAN	S	1912.1	1925.8	82.3	16.5	10.3		0
	2800	OTTA	20 GRF	2040	2120	60	4	2.6		
	9400	HUAN	S	2051.4	2114.7	55.7	20.1	13.6		0
	2695	PENT	240 R	2230	2253	23	5.2	2.6		
16	260	ONDR	44 NS	0703 E		412 D	18			
	410	SGMR	44 NS	1030 E	1228.1	570 D	55.5			3G

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	245	SGMR	44 NS	1030 E	1228.3	570 D	451			3G
	6100	KISV	2 S/F	0741	0742.8	6	3			
	3100	CRIM	24 R	0920.5	1320		12			
	536	ONDR	8 S	1000.3	1000.3	.3	143			
	33	UPIC	2 S/F	1012.6	1012.8	.6				
	29	UPIC	2 S/F	1012.6	1012.9	.8				
	29	UPIC	4 S/F	1015.6	1016	1.4				
	33	UPIC	4 S/F	1015.8	1016	.8				
	6100	KISV	2 S/F	1029.5	1030	3	3			
	9400	HUAN	S	1204.6	1216	20.2	8	1.6		0
	29	UPIC	8 S	1215.7	1216.2	.8				
	33	UPIC	8 S	1216.2	1216.4	.7				
	260	ONDR	45 C	1217.7	1217.7	2	168	15		
	237	TRST	42 SER	1228.1	1228.1	1.1	810			0
	234	POTS	45 C	1308.3	1308.4	1.7	120	5		
	237	TRST	42 SER	1308.4	1308.4	.9	350			88L
	113	POTS	46 C	1309.5	1312.8	3.6	350	12		
	7000	SAOP	46 C	1323.4	1327.2		110			29R
	9400	HUAN	F	1325.3	1327	4.9	113	47.8		L
	4995	SGMR	3 S	1325.4	1326.9	5.8	90.3	27.1		SWF
	8400	BERN	4	1325.5	1327.2	65	106			
	10400	BERN	4	1325.5	1327.2	65	95			
	8900	BERN	4	1325.5	1327.2	65	105			
	8800	SGMR	3 S	1325.7	1327.1	5.2	106	31.8		SWF
	2800	OTTA	4 S/F	1325.8	1326.5	2.7	17.2	10.4		
	15400	SGMR	3 S	1325.8	1327.1	5	53.3	16		SWF
	4995	BOUL	4 SF	1325	1326	5	80	27		
	2695	SGMR	3 S	1326	1326.7	3.2	17.7	5.3		SWF
	3000	BERL	4	1326	1327	2.5	25			
	9500	BERL	4 S/F	1326	1327.5	46	89			
	9100	ARCE	4 S/F	1326	1327.3	3.9				
	10715	DWIN	3 S	1326	1327	4	90	50		
	2650	DWIN	3 S	1326	1327	4	25	15		
	2800	OTTA	29 PBI	1328.5	1328.5	30 D	3			
	9100	ARCE	29 PBI	1329.9		57				
	9400	HUAN	PBI	1330.2	1330.2	85.5	19.1	12.4		L
	2800	OTTA	240FR	1515	1543	28	2.2	.8		
	9400	HUAN	S	1541.7	1545.6	9.7	9.6	3.8		0
	2800	OTTA	240 R	1605	1608	3	1.2	.6		
	9400	HUAN	S	1722.7	1800.8	93.4	14.3	8.6		0
	2800	OTTA	1 S	1740	1743	10	3	1.3		
	1420	BOUL	2 SF	1753.5	1754.5	4	4	1		
	4995	BOUL	2 SF	1753	1754.5	2.5	24	8		
	9400	HUAN	S	1754.2	1755	3.5	20.7	10.3		R
	2800	OTTA	3 S	1754	1754.8	2.5	16.4	9.4		
	2800	OTTA	29 PBI	1756.5	1756.5	19	5.4	2		
	2800	OTTA	20 GRF	1825	1836	33	2.2	1.1		
	2800	OTTA	24 R	1915	1930	15	2.4	1.2		
	2800	OTTA	27A RF	1915		225	2.4	2.1		
	2800	OTTA	24P R	1930		170	2.4			
	9400	HUAN	S	1936	1959.3	43.8	25.5	12.6		R
	2800	OTTA	21 GRF	1950	1958	35	7	3.5		
	2800	OTTA	1 S	1955.5	1956.7	2	9	4.5		
	9400	HUAN	S	2142.8	2155.6	20.2	11.1	7.8		R
	2695	PENT	26 FAL	2220	2300	40	-2.4	-1		
17	2695	PENT	1 S	0007	0007.5	1	7.8	3.9		
	9100	GORK	1 S	0611	0611.2	3.8	8	3		
	260	ONDR	44 NS	0700 E		475 D	10			
	410	SGMR	44 NS	1030 E	1509.2	570 D	22.8			
	245	SGMR	44 NS	1030 E	1625.2	570 D	19.4			
	3100	CRIM	28 RPF	0745	0826	41	6	2		
	6100	KISV	8 S	0824	0828	21	216			
	9100	GORK	21 GRF	0824	0830.8	63	34	14		
	8900	BERN	4	0825	0827.6	75	208			
	8400	BERN	4	0825	827.6	75	221			
	10400	BERN	4	0825	827.6	75	175			
	2950	GORK	21 GRF	0825.2U		60				
	9100	GORK	3 S	0826	0828.2U	4.7	213			
	8800	MANI	4 S/F	0826	0827.6	5.1	183.9	61.3		
	4995	MANI	4 S/F	0826	0827.8	7.1	217.4	72.5		
	15000	KISV	4 S/F	0826	0828.3	18	17			
	3000	BERL	4 S/F	0826	0828	84	88			
	9500	BERL	4 S/F	0826	0828	89	168			
	3100	CRIM	29 PBI	0826	0831	70	18	6		
	3100	CRIM	7 G	0826	0828		70	23		
	2695	MANI	4 S/F	0826.3	0828.3	4.3	64.3	21.4		
	1470	BERL	4 S/F	0826.5	0827.5	6.5	9.6			
	2650	DWIN	45 C	0826	0828	10	70	40		
	10715	DWIN	45 C	0826	0828	10	180	100		
	9100	ARCE	4 S/F	0826	0827.8	5.8				
	1415	MANI	4 S/F	0827.2	0827.5	2.6	10.3	3.4		
	2950	GORK	4 SF	0827.4	0828.2	2.9	110			
	9100	ARCE	29 PBI	0831.8		70				
	1470	BERL	3 S	1118	1118.2	.5	7.6			

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	9400	HUAN		S	1212.7	1221.2	12.9	7.9	2.8		0
	2800	OTTA	22	GRF	1216	1220.5	25	4.8	2		
	7000	SAOP	2	S/F	1218.4	1220.8	2.4	10			0
	7000	SAOP	41	F	1218.4						
	9100	ARCE	22	GRF	1218	1220.9	24				
	9500	BERL	4	S/F	1220	1220.7	7.5	12			
	1470	BERL	1	S	1220	1220.5	1	2.1			
	930	BORD	41	F	1220.4	1220.7	3.3	21	3		
	3000	BERL	1	S	1220.5	1220.9	9.5	8			
	9400	HUAN		S	1222.2	1222.6	.8	9.5	9.1		R
	808	ONDR	45	C	1227	1230.5	8	50	6.6		
	536	ONDR	8	S	1229.5	1229.5	.3	43			
	930	BORD	41	F	1229	1231.7	4	21	3		
	8900	BERN	3		1257.5	1259.8	15	38			
	8400	BERN	3		1257.5	1259.8	15	35			
	10400	BERN	3		1257.5	1259.8	15	38			
	7000	SAOP	2	S/F	1257.5	1300	1.6	31.7			11R
	9500	BERL	4	S/F	1258	1259.8	7	33			
	6100	KISV	4	S/F	1258	1300	12	24			
	8800	SGMR	3	S	1258.6	1259.8	4.4	37.1	14.8		
	9400	HUAN		S	1258.8E	1259.7	9.5	36.5	12.1		L
	4995	SGMR	3	S	1258.9	1300	4.1	24.1	9.6		
	2695	SGMR	1	S	1259.4	1300.3	3.6	7.3	2.9		
	3000	BERL	4	S/F	1259.5	1301	5.5	11			
	2800	OTTA	1	S	1259	1300	4	7	4.2		
	9100	ARCE	3	S	1259	1300.1	2.7				
	9100	ARCE	29	PBI	1301.7		9				
	2800	OTTA	29	PBI	1303	1303	45	3.6	1.5		
	9400	HUAN		S	1320	1331.6	34.4	6.3	2.5		L
	9400	HUAN		C	1456.8	1500.2	12	115.8	46.7		L
	7000	SAOP	46	C	1457.2	1500.3	1.6	151.3			28R
	4995	SGMR	3	S	1458	1500.4	11	104	41.6		SWF
	8400	BERN	46		1458.7	1500.1	19	111			
	10400	BERN	46		1458.7	1505.5	19	63			
	8400	BERN	46		1458.7	1505.5	19	49			
	10400	BERN	46		1458.7	1500.1	19	98			
	8900	BERN	46		1458.7	1500.1	19	104			
	8900	BERN	46		1458.7	1505.5	19	51			
	9100	ARCE	46	C/F	1459.1	1500.4	9.3				
	9100	ARCE			1459.1	1500.4	5.3				
	2800	OTTA	45	C	1459.2	1500.5	12.8	19.6	14.6		
	2695	SGMR	3	S	1459.3	1500.6	9.7	20.3	8.1		SWF
	15400	SGMR	3	S	1459.4	1500.1	9.6	53.9	21.6		SWF
	8800	SGMR	3	S	1459.5	1500.1	9.5	94.1	37.6		SWF
	1415	SGMR	3	S	1459.6	1500	9.4	28.8	11.5		SWF
	2650	DWIN	40	F	1459	1500	20	20	15		
	10715	DWIN	40	F	1459	1500	10	90	40		
	9100	ARCE			1504.4	1505.7	4				
	9100	ARCE	29	PBI	1508.4		56				
	9400	HUAN		PBI	1508.8	1508.8	88.2	25.4	10.4		L
	2800	OTTA	29	PBI	1512	1512	110	10.2	5.1		
	9400	HUAN		S	1530.8	1532	1.9	4.8	2.2		0
	9400	HUAN		S	1540.5	1550.3	25.2	6.3	3.6		0
	9400	HUAN		S	1742	1750	15.3	4.8	2.7		0
	2800	OTTA	20	GRF	1800	1840	60	2.4	1.2		
	9400	HUAN		S	1937.7	1951.5	31.4	17.4	8		L
	2800	OTTA	22	GRF	1950	2032	90	5.6	2		
	9400	HUAN		S	2024	2041.2	55	14.3	10.2		L
	2800	OTTA	1	S	2125	2127	9	4.6	2.1		
	9400	HUAN		S	2159.3	2200.6	3	9.5	8.1		0
	2800	OTTA	1	S	2228.5	2228.9	1	3.4	1.7		
	4995	BOUL	4	SF	2241	2242	6	40	13		
18	2695	PENT	1	S	0013.5	0014	1	3.4	1.7		
	3100	CRIM	25	R	0631.5	0640		7			
	9100	GORK	20	GRF	0657.4	0702.6	12	9	4		
	9500	BERL	1	S	0701.5	0703	2.5	6.5			
	3000	BERL	4	S/F	0701.5	0702.8	3	10			
	930	BORD	45	C	0701	0702.7	4	145	10		
	1470	BERL	4	S/F	0702	0703.5	2.5	13			
	3100	CRIM	1	S	0702	0703	2	8	3		
	237	TRST	41	F	0702.4	0702.5	.3	380			0
	113	POTS	45	C	0716	0716.1	.5	150	40		
	9500	BERL	3	S	0732.5	0733.6	7.5	27			
	9100	GORK	2	SF	0732.6	0733.9	7	30	10		
	9100	ARCE	3	S	0732.8	0733.8	3.8				
	2950	GORK	1	S	0733	0734.7	4.6	9	4		
	8900	BERN	3		0733	0733.7	2.5	34			
	8400	BERN	3		0733	733.7	2.5	36			
	10400	BERN	3		0733	733.7	2.5	31			
	1470	BERL	3	S	0733	0734.8	7	5.7			
	3000	BERL	3	S	0733	0734.5	3	7.3			
	3100	CRIM	1	S	0733.5	0734	4	6	2		
	930	BORD	45	C	0733	0733.9	2	48	2		
	930	BORD	3	S	0738	0741.6	12	17	7		

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	2695	MANI	3 S	0925	0926	3.1	63.6	21.2		
	228	HARS	45 C	0925	0926	3	400	140		
	1415	MANI	3 S	0925.1	0926	6.5	30.5	9.7		
	4995	MANI	3 S	0925.1	0926	3.4	51	17		
	8400	BERN	45	0925.5	926.8	4	88			
	10400	BERN	45	0925.5	926.8	4	88			
	8900	BERN	45	0925.5	0926.8	4	82			
	127	TORN	47 GB	0925.6	0926.3	2.5U	1600	150		
	9100	GORK	3 S	0925.7	0927	7	95	45		
	930	BORD	45 C	0925.8	0926.7	7.2	134	10		
	113	POTS	45 C	0925.8	0926.5	4.8	7000	450		
	234	POTS	2 S/F	0926	0926.8	4.5	1960	70		
	1470	BERL	3 S	0926	0927.4	6	47			
	3000	BERL	3 S	0926	0926.8	4	70			
	9500	BERL	3 S	0926	0926.7	3	70			
	408	TRST	47 GB	0926	0926.8	1.5	1500			
	3100	CRIM	3 S	0926	0926.5	6	17 D	6		
	950	GORK	3 S	0926	0927	3.9	49	24		
	100	GORK	45 C	0926.2	0927	42	50			
	2950	GORK	3 S	0926.2	0927.1	3.3	48	24		
	650	GORK	29 PBI	0926.2	0928.5	10.3	5			
	650	GORK	4 SF	0926.2	0926.3	2.2	85	15		
	100	GORK		0926.2	0929.3		2000			
	202	IZMI	47 GB	0926.2	0927	1.5	5170	1240		
	237	TRST	41 F	0926.2	0926.7	.8	2400			0
	9100	ARCE	4 S/F	0926	0927	4				
	202	IZMI	5 S	0928.1	0928.1	.7	1330	530		
	237	TRST	41 F	0928.6	0928.9	.8	950			0
	410	SGMR	44 NS	1030 E	1058	570 D	48			3,5
	245	SGMR	44 NS	1030 E	1115.3	570 D	48.7			3,5
	408	TRST	42 SER	1045.2	1045.6	2	47			
	237	TRST	41 F	1045.4	1045.5	.5	135			0
	1470	BERL	1 S	1047	1047.3	1	3.1			
	3000	BERL	1 S	1057.3	1057.7	2.2	5			
	408	TRST	42 SER	1057.4	1057.8	.5	110			
	1470	BERL	1 S	1057.5	1057.8	1.5	4.1			
	237	TRST	41 F	1057.8	1057.9	.2	165			13L
	9100	ARCE	41 SER	1128.2	1130.3	27.7				
	9100	ARCE	1 S	1128.2	1130.3	4.8				
	8900	BERN	1	1128.7	1130.1	3.5	15			
	10400	BERN	1	1128.7	1130.1	3.5	11			
	8400	BERN	1	1128.7	1130.1	3.5	17			
	9500	BERL	1 S	1129	1130	2	9			
	9100	GORK	1 S	1129.8	1130.5	1.1	10	5		
	9100	ARCE	2 S/F	1135	1135.3	1				
	9100	ARCE	1 S	1154.9	1155.1	1				
	113	POTS	S	1220	1220.1	.5	150	50		
	2800	OTTA	27A RF	1245		305	2.4	2.1		
	2800	OTTA	24 R	1245	1330	45	2.4	1.2		
	7000	SAOP	1 S	1248.4	1249.1		6			0
	7000	SAOP	41 F	1248.4						
	2800	OTTA	8 S	1249	1249.2	.8	2.6	1.3		
	113	POTS	S	1308	1308.2	.5	250	80		
	7000	SAOP	4 S/F	1310	1310.6	.2	12			53R
	9100	ARCE	1 S	1310.4	1310.7	1				
	9400	HUAN	C	1313.5	1314.6	4	27.3	5.4		L
	8900	BERN	45	1314.3	1314.6	4.5	29			
	8400	BERN	45	1314.3	1314.6	4.5	22			
	10400	BERN	45	1314.3	1314.6	4.5	27			
	7000	SAOP	46 C	1314.4	1314.7	.3	16.9			17R
	9500	BERL	4 S/F	1314.5	1314.9	3	17			
	1470	BERL	2 S/F	1314.5	1314.6	2	5.2			
	3000	BERL	3 S	1314.5	1314.7	2.5	8			
	2800	OTTA	1 S	1314.5	1314.6	2	6	2		
	9100	ARCE	2 S/F	1314.6	1314.8	2.8				
	930	BORD	41 F	1315.5	1315.8	.4	75	2		
	9400	HUAN	S	1324.7	1329.5	13.1	9.6	2.2		0
	113	POTS	2 S/F	1330.8	1332.2	2.3	220	10		
	2800	OTTA	24P R	1330		235	2.4			
	33	UPIC	4 S/F	1332.4	1332.5	1				
	29	UPIC	4 S/F	1332.4	1332.8	1.1				
	29	UPIC	4 S/F	1525.1	1525.6	1				
	33	UPIC	4 S/F	1525	1525.1	.9				
	2800	OTTA	20 GRF	1540	1640	90	2.4	1.2		
	2800	OTTA	26 FAL	1725	1750	25	-2.4	-1.2		
	410	SGMR	6 S	1846.2	1846.5	.8	7.2	2.9		3G
	245	SGMR	6 S	1846.2	1851.3	10.8	116	46.4		3G
	606	SGMR	3 S	1846.3	1846.5	3.4	35.2	14.1		3G
	1415	SGMR	1 S	1846.4	1846.6	.6	4.6	1.8		3G
	2800	OTTA	1 S	1930	1931	3	1.6	.8		
	9400	HUAN	S	2000	2000.3	1.5	8	3.6		L
	2800	OTTA	20 GRF	2000	2040	120	2.2	1.1		
	9400	HUAN	S	2045	2100.2	36	6.4	4.4		0
	18	MCMA	6 S	2244	2246	7			1	
	2695	PENT	20 GRF	2250		60	2.4			

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19	234	POTS	45 C	0618.2	0618.3	.5	250	50		
	3100	CRIM		0830	0915		3			
	3100	CRIM		0830	0857.5		2			
	3100	CRIM		0830	0847		1			
	3100	CRIM	40 F	0830	0831.5	57	3			
	9100	ARCE	1 S	1027.3	1028.5	3				
	9100	GORK	1 S	1028	1028.2	.8	8	4		
	410	SGMR	44 NS	1031 E	1258.8	569 D	12.8			
	245	SGMR	44 NS	1031 E	1843.2	569 D	71.3			
	7000	SAOP	1 S	1042.5	1044		10			59R
	33	UPIC	4 S/F	1106.2	1106.2	.8				
	29	UPIC	3 S	1106.4	1106.6	.6				
	6100	KISV	4 S/F	1125	1158	4	12			
	6100	KISV	4 S/F	1143	1144	17	11			
	9400	HUAN	S	1313.6	1333.5	66.1	4.8	3		0
	2800	OTTA	20 GRF	1510	1540	50	1.6	.8		
	2800	OTTA	20 GRF	1644	1646	30	4.4	2.2		
	2800	OTTA	20 GRF	1905	1925	70	2			
	2800	OTTA	20 GRF	2045	2105	30	1.8	.9		
	9400	HUAN	S	2054.6	2106.5	21.4	6.4	2.6		0
20	5730	IRKU	1 S	0336	0338.2	5	10	4		R
	6100	KISV	4 S/F	0449	0450	11	14			
	5730	IRKU	1 S	0449	0449.9	6	17	5		R
	9100	ARCE	4 S/F	0641	0641.5	1				
	127	TORN	44 NS	0710 E	1229.6	410 D	13	1.4		VO
	410	SGMR	44 NS	1032 E	1521.8	568 D	6			
	9100	ARCE	1 S	1015.7	1015.9	.6				
	9400	HUAN	S	1343.8	1350.2	13.9	6.6	3		0
	9400	HUAN	S	1401.7	1422.8	28.9	8.3	4.1		0
	2800	OTTA	20 GRF	1710	1722	25	2.2	1.1		
	2800	OTTA	20 GRF	1835	1917	60	1.6	1.2		
	2800	OTTA	20 GRF	2010	2035	55	2.2	1.6		
	4995	BOUL	2 SF	2033	2037	8.5	22	7		
	2695	PENT	240 R	2200	2215	15	2.4	1.2		
	2695	PENT	21 GRF	2300	2330	80	2.4	1.4		
	4995	BOUL	4 SF	2349.5	2351	8	61	20		
	8800	MANI	3 S	2351.2	2351.6	.7	31.5	10.5		
	2695	MANI	3 S	2351.3	2351.6	1.6	56.6	18.7		
	4995	MANI	3 S	2351.5	2351.7	1.8	45.8	15.3		
	2695	PENT	3 S	2351	2351.7	5	53	15.6		
21	5730	IRKU		0314	0317.2		13			L
	5730	IRKU		0314	0315.4		24			L
	5730	IRKU	45 C	0314	0315	7	12			L
	8800	MANI	3 S	0315.2	0316	2.2	30.1	10		
	4995	MANI	3 S	0315.2	0316.5	3.1	17.8	5.9		
	200	GORK	44 NS	0400 E		480		15		
	100	GORK	44 NS	0430 E		450		200		
	100	HIRA	43 NS	0530	0650	185 D	150	80		SL
	200	HIRA	43 NS	0535	0650	180 D	30	10		ML
	202	IZMI	43 NS	0600		360	73			
	127	TORN	44 NS	0710 E	1118.9	450 D	120	48		V2
	245	SGMR	44 NS	1033 E	1441.7	567 D	197			3G,CONT
	410	SGMR	44 NS	1033 E	1238.2	567 D	26			3G,CONT
	2695	MANI	4 S/F	0409.3	0415.2	20.5	317.8.	105.9		
	1415	MANI	4 S/F	0409.7	0416.1	25.8	101.5	33.8		
	200	HIRA	27 RF	0409	0423.5	85	80	25		ML
	1400	SYDN	48 GB	0410	0410.6	10.9				
	700	SYDN	48 GB	0410.1	0413	10.7				
	8800	MANI	47 GB	0410.1	0415.3		590			
	8800	MANI	47 GB	0410.1	0413.6	18.8	505	195.9		I
	5730	IRKU	47 GB	0410	0412.5	25	88			
	5730	IRKU		0410	0423.5		106			
	5730	IRKU		0410	0417 U		171 D			
	500	HIRA	46 C	0411	0415.9	38	145	20		SL
	650	GORK	23 GRF	0411.3		51.7				
	4995	MANI	47 GB	0411.3	0415.3		690			
	4995	MANI	47 GB	0411.3	0413.7	17.5	625	230.4		
	606	MANI	4 S/F	0411.8	0416	14.8	36.4	12.2		
	650	GORK	45 C	0412.2	0412.6	4.7	47			
	650	GORK		0412.2	0415.7		29			
	950	GORK	23 GRF	0412.8	0439	38	14			
	2950	GORK	29 PBI	0412.8	0419.3	13.7	150			
	2950	GORK	4 S	0412.8	0415.2	6.3	450			
	35000	NAGO	5 S	0413	0415.5	9	84			
	950	GORK	5 S	0414.7	0416.1	6	27			
	100	GORK	47 GB	0418	0419	3.8	27000			
	100	HIRA	46 C	0418	0418.8	72	4000	90		SR
	650	GORK	4 SF	0421.4	0423.4	3.9	18	6		
	950	GORK	5 S	0421.5	0423.3	4.6	23			
	35000	NAGO	29 PBI	0422	0422	8	25			
	650	GORK	2 SF	0430	0430.8	3	8	4		
	350	GORK	5 S	0430.1	0430.8	3	21			

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	100	GORK	27 RF	0634	0642	12	280	70		
	3100	CRIM	3 S	0721	0731	21	7	2		
	237	TRST		0831.1	0832.9		340			3L
	237	TRST	42 SER	0831.1	0831.1	2.4	205			4L
	234	POTS	45 C	0833	0833.1	.4	175	35		
	245	SGMR	6 S	1233.2	1235.1	5.1	142	56.8		CONT
	228	HARS	45 C	1234	1234.7	1.5	200	60		
	234	POTS	45 C	1234.1	1234.6	1.6	275	5		
	3000	BERL	1 S	1326	1327.8	2.4	5.7			
	1470	BERL	1 S	1327	1328	2	4.5			
	33	UPIC	45 C	1328.1	1328.3	1.5				
	29	UPIC	45 C	1328.1	1328.6	1.8				
	2800	OTTA	1 S	1328	1329	2	3	2.2		
	9400	HUAN	S	1400.5	1408	22.7	4.5	1.8		0
	2800	OTTA	21 GRF	1420 E	1445	140 D	3			
	29	UPIC	4 S/F	1439.5	1439.9	.7				
	33	UPIC	2 S/F	1439.8	1440	.7				
	930	BORD	41 F	1440.8	1441.4	.7	22	2		
	2800	OTTA	40 F	1554.2	1554.6	4	20			
	1415	SGMR	3 S	1554.5	1554.6	3.5	152	60.8		3,CONT
	606	SGMR	3 S	1554.6	1557.5	6.9	365	146		3,CONT
	410	SGMR	7 S	1554.7	1555.3	7.3	317	127		3,CONT
	930	BORD	41 F	1554	1554.7	6	151	2		
	245	SGMR	7 S	1555.5	1557.8	6	255	102		3,CONT
	237	TRST	41 F	1557.4	1557.6	.6	310			0
	2800	OTTA	1 S	1601	1601.4	1	4.6	1.2		
	2800	OTTA	1 S	1612.7	1613	2	1.8	1.2		
	930	BORD	8 S	1656	1656	.1	187	1		
	4995	BOUL	4 SF	1659	1702	5	34	11		
	2800	OTTA	20 GRF	1710	1722	40	2.8	1.4		
	18	MCMA	6 S	1904	1909	8			1	
	9400	HUAN	S	1927.1	1946.8	37.2	7.8	3.7		0
	200	HIRA	44 NS	2030 E	2245	725 D	50	10		SL
	100	HIRA	44 NS	2030 E	2215	725 D	20	10		ML
22	100	GORK	44 NS	0500 E		420		15		
	200	GORK	44 NS	0500 E		480		5		
	202	IZMI	43 NS	0600		360	55			
	127	TORN	44 NS	0710 E	1222.8	490 D	150	14		V1
	245	SGMR	44 NS	1034 E	1137.6	566 D	907			2,3,5,CONT
	410	SGMR	44 NS	1034 E	1136.5	566 D	279			2,3,5,CONT
	100	GORK	44 NS	1200		60		90		
	606	SGMR	43 NS	1425	1937.7	335 D	366			2,3,5,CONT
	234	POTS	2 S/F	0742.3	0742.5	2.7	120	1		
	234	POTS	2 S/F	0917.3	0918.2	3.4	160	1		
	113	POTS	2 S/F	1005.6	1005.7	.6	140	20		
	33	UPIC	42 SER	1005.7	1005.8	56.7				
	29	UPIC	42 SER	1005.9	1058.3	56.7				
	237	TRST	41 F	1029.2	1029.2	.1	205			0
	408	TRST	42 SER	1032.1	1037.5	6.2	130			
	113	POTS	48 C	1034.7	1057.8	24	850	10		
	127	TORN	42 SER	1047	1058.1	12	440			
	33	UPIC	46 C	1122.9	1137.3	16.2				
	29	UPIC	46 C	1123	1133.4	17.2				
	113	POTS	48 C	1125.4	1138.1	13	5000	15		
	202	IZMI	41 F	1132	1133.1	2	400			
	237	TRST	41 F	1132.1	1132.9	1.8	275			2L
	234	POTS	48 C	1132.6	1137.5	17	1400	7		
	237	TRST	41 F	1137.5	1137.5	.4	1950			3L
	202	IZMI	7 C	1137.5	1137.7	.8	900	480		
	33	UPIC	42 SER	1147.3	1205.9	19.1				
	29	UPIC	42 SER	1147.5	1206.2	19.1				
	113	POTS	45 C	1155	1258	137	75	20		
	234	POTS	48 C	1231	1258.6	29	1300	1		
	33	UPIC	48 C	1247.7	1257.5	14.4				
	29	UPIC	48 C	1248.6	1255.5	13.9				
	113	POTS	48 C	1253.8	1257.5	6.3	6500			
	245	SGMR	48 GB	1255	1258.8	8	984	394		5,CONT
	606	SGMR	3 S	1257.1	1258.8	3.1	54.6	21.8		5,CONT
	930	BORD	45 C	1257.4	1258.6	2.6	14	3		
	237	TRST	42 SER	1257.4	1257.8	4.1	1400			0
	237	TRST		1257.4	1300.9		150			0
	237	TRST		1257.4	1258.6		1900			0
	228	HARS	45 C	1257.5	1258.5	2.5	1100	200		
	410	SGMR	6 S	1257.5	1258.8	4.5	217	86.8		5,CONT
	2800	OTTA	23 GRF	1310	1540	370	9.2	5		
	234	POTS	45 C	1312.6	1312.6	.4	8000	2500		
	237	TRST	41 F	1312.7	1312.7	.1	4750			0
	29	UPIC	42 SER	1339.3	1408.4	29.5				
	33	UPIC	42 SER	1339	1408	30.2				
	237	TRST	41 F	1349	1349.1	.2	110			0
	113	POTS	2 S/F	1407.5	1408.5	4.7	350	5		
	930	BORD	40 F	1431	1440.8	24	19	5		
	228	HARS	24 R	1439		180 D		30		SUNSET
	2800	OTTA	1 S	1514	1516.5	6	4	1.2		

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SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	930	BORD	46 C	1519.6	1519.8	.3	21	2		
	9400	HUAN	S	1527.4	1533.8	18.7	8.4	3		0
	33	UPIC	45 C	1533.9	1534.1	1.9				
	29	UPIC	45 C	1534.1	1534.5	2				
	33	UPIC	8 S	1547.2	1547.4	.4				
	29	UPIC	8 S	1547.6	1547.8	.3				
	237	TRST	41 F	1618.5	1619	1.2	370			0
	18	MCMA	41 F	1759	1809	10			1	
	2800	OTTA	20 GRF	1940	1955	65	2.6	1.3		
	9400	HUAN	S	1950.2	2017.4	53.3	11.8	10.9		0
	200	HIRA	44 NS	2030 E	0340	725 D	20	10		MR
	2695	PENT	240 R	2055	2155	60	4.6	2.3		
	2695	PENT	20 GRF	2315	2325	50	2.6	1.3		
23	100	HIRA	43 NS	0210	0239	120	60	15		ML
	200	GORK	44 NS	0400 E		330		10		
	127	TORN	44 NS	0710 E	1332.6	450 D	670	100		V1
	202	IZMI	44 NS	1002.3		177.7	200			
	410	SGHR	44 NS	1035 E	1810.2	565 D	21			CONT
	245	SGHR	44 NS	1035 E	1111	565 D	14.3			CONT
	500	HIRA	27 RF	0222	0238.9	60	15	8		SL
	650	GORK	3 S	0432.2	0432.6	.6	33	15		
	3100	CRIM	25 R	0510 E	0715		11			
	234	POTS	45 C	0719.5	0720.5	2.3	350	90		
	237	TRST	41 F	0720.4	0720.6	.4	510			4R
	6100	KISV	20 GRF	0803	0807	17	6			
	9500	BERL	20 GRF	0803	0807.5	10	6.5			
	2950	GORK	1 S	0804.9	0805.3	1	7.5	3.7		
	3000	BERL	21 GRF	0804	0805	8	7.6			
	650	GORK		0818	0826.3		4			
	650	GORK	41 F	0818	0822.4	15	8			
	3000	BERL	3 S	0906	0908.4	3	8.4			
	6100	KISV	4 S/F	0906	0907	3	10			
	1470	BERL	1 S	0907.5	0909	1.5	3.6			
	3100	CRIM	1 S	0908	0908.1	1	4	1		
	2950	GORK	1 S	0908	0908.2	1	5	2.5		
	8900	BERN	46	0932.8	1002.2	276	617			
	10400	BERN	46	0932.8	1002.2	276	500			
	8400	BERN	46	0932.8	1002.2	276	682			
	3000	BERL	21 GRF	0933	1212.5	267	85			
	1470	BERL	21 GRF	0935	1146	265	43			
	3100	CRIM	47 GB	0937	1002	43	375	125		
	3100	CRIM	29 PBI	0937	1020	160 D	80	27		
	2950	GORK	47 GB	0938.1	1007.3	82	115			
	650	GORK		0939.3	1015.4		110			
	650	GORK	46 C	0939.3	1007.8	90	90			
	1470	BERL	46 C	0940	1017	83	640			
	9100	ARCE	28 PRE	0940.4	0954.5	16.4				
	2650	DWIN	49 GB	0940		240	300 D			
	9100	GORK	47 GB	0941	1002	88	400			
	3000	BERL	46 C	0941	1006.2	79	1360 D			
	6100	KISV	4 GB	0941	1002		581			
	950	GORK	47 GB	0942.6	1019.5	78	230			
	930	BORD		0942	1001.5		264			
	930	BORD	47 GB	0942	1156.6	168	942	132		
	930	BORD		0942	1204.5		431			
	930	BORD		0942	1159		678			
	930	BORD		0942	1036.3		282			
	930	BORD		0942	1016.5		352			
	9500	BERL	46 C	0944	1002	257	505			
	15000	KISV	47 GB	0945	1007	135	410			
	234	POTS	45 C	0945	1002	264	420	100		
	10715	DWIN	49 GB	0945	1005	115	400	200		
	408	TRST		0947.5	1206.8		500			
	408	TRST		0947.5	1157.3		460			
	408	TRST		0947.5	1055.6		69			
	408	TRST	49 GB	0947.5	0958.9	167.5	440			
	200	GORK		0950.8	1032.8		550			
	200	GORK		0950.8	1013.8		540			
	200	GORK		0950.8	1002		150			
	200	GORK	46 C	0950.8	0951.5	70	25			
	113	POTS	45 C	0955	1111	275	350			
	100	GORK		0956	1100		10000			
	100	GORK		0956	1019.4		2000			
	100	GORK	46 C	0956	1006	64	2000			
	228	HARS	28 PRE	0956.4	0956.5	3	50	20		
	9100	ARCE	46 C/F	0956.8	1002.3	35.4				
	9100	ARCE		0956.8	1002.3	16.9				
	127	TORN	25 R	0957 U	1056	60 U	340			
	127	TORN		0957 U	1005.8		240			
	127	TORN	48 C	0957 U	1002	10	250			
	228	HARS	47 GB	0959.5	1000.5	3	1200	500		
	228	HARS		0959.5	1001	.2	900			
	202	IZMI	47 GB	1000	1001.8	2.3	1600	550		
	237	TRST	41 F	1000.1	1001.4	1.8	3850			4R

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	33	UPIC	49 GB	1000.7	1003.1	27.6				
	29	UPIC	49 GB	1001.1	1003.7U	27.7				
	237	TRST	47 GB	1001.5	1012.4	230	425			68R
	237	TRST		1001.5	1206.9		430			56R
	228	HARS	29 PBI	1006	1207	210	320	130		
	228	HARS		1006	1316		200			
	228	HARS		1006	1015		150			
	228	HARS		1006	1012		210			
	9100	ARCE		1013.7	1016.6	18.5				
	33	UPIC	29 PBI	1028.3	1154.5	163				
	29	UPIC	29 PBI	1028.8	1147.5	146.7				
	9100	ARCE	29 PBI	1032.2		180				
	9400	HUAN	PBI	1128.3	1128.3	161.3	83.2	41.4		L
	1415	SGMR	45 C	1129.5	1231		253			4
	1415	SGMR	45 C	1129.5	1156.8	89.5	275	110		4
	606	SGMR	45 C	1129.8	1229		143			4
	606	SGMR	45 C	1129.8	1157.5	88.2	473	189		4
	2695	SGMR	45 C	1141	1229.7		282			
	2695	SGMR	45 C	1141	1206.7	76	43.2	113		4
	4995	SGMR	20 GRF	1141.4	1205.9	73.4	31.2	12.5		4
	8800	SGMR	20 GRF	1142.7	1209.3	70.5	20.3	8.1		4
	2800	OTTA	21 GRF	1145 E	1206	385 D	91			
	410	SGMR	7 C	1148.7	1227		48			4
	410	SGMR	7 C	1149.7	1158.7	65.3	481	192		4
	245	SGMR	6 S	1149.7	1158.7	65.3	144	57.6		4
	1470	BERL	46 C	1151.5	1231	69	235			
	9400	HUAN	S	1155.2	1205	39.2	19.6	7.8		L
	2800	OTTA	45 C	1222	1229.3	15	116	31.9		
	2800	OTTA		1222	1224.4	3.3	33.4			
	3000	BERL	46 C	1224	1226.5	11	94			
	2800	OTTA		1225.3	1226.7	2.1	89.6			
	2800	OTTA		1227.4	1229.3	3.1	116			
	2800	OTTA		1230.5	1232	3	64.8			
	930	BORD	29 PBI	1230	1230	100	98	44		
	2800	OTTA		1233.5	1234.7	3.5	27			
	2800	OTTA	29 PBI	1237	1237	11	6.6	3.3		
	245	SGMR	6 S	1309	1316.6	21.1	146	58.4		4
	410	SGMR	6 S	1309.7	1316.7	13.3	14	5.6		4
	606	SGMR	20 GRF	1310.3	1317	12.4	8.2	2.5		4
	200	HIRA	44 NS	2030 E	0610	725 D	20	5		MR
	2800	OTTA	1 S	2129	2130	3	2.2	1.1		
24	5730	IRKU		0207	0211.9		84			L
	5730	IRKU	2 S	0207	0209.8	11	58			L
	200	GORK	44 NS	0403 E		418		5		
	202	IZMI	44 NS	0600		360	17			
	245	SGMR	44 NS	1036 E	1832.2	564 D	57.5			3G.5
	6100	KISV	20 GRF	0629	0633	31	11			
	29	UPIC	41 F	1018.1	1024.8	52.3				
	33	UPIC	41 F	1019.1	1024.5	47.3				
	127	TORN	41 F	1023	1028.4	35 U	48			
	2800	OTTA	20 GRF	1215	1223	75	2.8	1.8		
	2800	OTTA	20 GRF	1510	1600	65	1.6	.8		
	33	UPIC	4 S/F	1604	1604.3	.7				
	29	UPIC	2 S/F	1604	1604.3	.3				
	1415	SGMR	3 S	1718.4	1724.5	21.6	105	31.5		2,4,SWF
	2300	OTTA	4 S/F	1719.5	1724.2	10.5	163	67		
	7000	SAOP	3 S	1719.6	1725	4.9	107.5			36L
	410	SGMR	6 S	1719.7	1724.4	15.6	212.8	63.8		2,4,SWF
	606	SGMR	3 S	1719.7	1722.5	15	313	93.9		2,4,SWF
	4995	BOUL	3 S	1719	1723.5	21	100	33		
	1420	BOUL	4 SF	1719 E	1725 U	11 D	76	25		
	930	BORD	45 C	1719	1722	14 D	135	25		SUNSET
	2695	SGMR	3 S	1720	1724.7	14.2	186	55.8		2,4,SWF
	4995	SGMR	3 S	1720	1724.5	11.5	123	36.9		2,4,SWF
	245	SGMR	7 S	1720	1720.1	15.8	401	120		2,4,SWF
	9400	HUAN	S	1720	1725.5	9.5	76.1	38.7		R
	2695	BOUL	3 S	1720.5E	1726	9.50	180	60		
	8300	SGMR	3 S	1721	1725.2	10.3	78.6	23.6		2,4,SWF
	15400	SGMR	3 S	1721.1	1724.2	10.6	54.7	16.4		2,4,SWF
	18	MCMA	42 SER	1722	1738	19			1	
	2695	BOUL	32 ABS	1730	1733 U	5.50	5	2		
	2800	OTTA	20 GRF	1731.5	1737	140	9	4.5		
	9430	HUAN	S	1731.8	1737.6	17.8	10.1	6.8		0
	2800	OTTA	21 GRF	2055		175	4.8			
	1420	BOUL	20 GRF	2105.5E	2111.5	63 U	48	16		
	4995	BOUL	45 C	2105.5	2117.5	37.5	30	10		
	9400	HUAN	S	2105.8	2120.7	40	27	18.2		0
	2800	OTTA	46F C	2106.5	2118.2	37	54.6	20		
	500	HIRA	48 C	2108.6	2110.4	10	2500	1000		MR
	200	HIRA	27 RF	2108	2122.5	105	90	25		WL,MR
	2695	BOUL	20 GRF	2108 E	2119	32.5D	56	19		
	100	HIRA	46 C	2115	2128.5	95	140	20		0
	500	HIRA	46 C	2120.5	2121.4	2.5	90	40		WL
	500	HIRA	46 C	2129	2132.2	5	170	50		ML

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25	5730	IRKU	1 S	0246	0246.2	2	14	7		L
	200	GORK	44 NS	0354 E		409		5		
	245	SGMR	44 NS	1037 E	1348.8	563 D	13.4			5
	410	SGMR	44 NS	1245 E	1546.2	435 D	22.3			5
	3100	CRIM	1 S	1013	1014	1.5	4	1		
	9400	HUAN	S	1341.2	1345.8	12.5	5.1	3.2		R
	2800	OTTA	20 GRF	1417	1426	25	3	1.5		
	2800	OTTA	20 GRF	1850	1935	85	2.2	1.4		
	4995	BOUL	2 SF	1927	1929	7.5	14	5		
26	200	GORK	44 NS	0400 E		99		5		
	100	GORK	44 NS	0400 E		100		5		
	202	IZMI	5 S	0604.3	0604.5	.7	118	50		
	3100	CRIM	21 GRF	0629	0727	390 D	10	3		
	9500	BERL	20 GRF	0735	0744.4	35	89			
	3100	CRIM	1 S	0737	0740	4	16	5		
	4995	MANI	3 S	0737.1	0739.8	7.2	22.5	7.5		
	1470	BERL	3 S	0738	0741	6	8.3			
	2695	MANI	3 S	0738.2	0739.3	2.8	25.9	8.5		
	3000	BERL	4 S/F	0738.5	0740.6	7.5	18			
	1415	MANI	3 S	0739.1	0739.9	2.4	3.8	1.3		
	9100	ARCE	21 GRF	0739.4	0740.3	33				
	9100	GORK	1 S	0739.9	0740.3	1.3	8	4		
	9100	ARCE	4 S/F	0756	0756.5	1.5				
	100	GORK	44 NS	0845		345		10		
	200	GORK	44 NS	0845 E		345		10		
	202	IZMI	43 NS	0950		130	46			
	245	SGMR	44 NS	1039 E	1716.3	561 D	71.8			3,5
	410	SGMR	44 NS	1039 E	1828.2	561 D	47.7			3,5
	29	UPIC	4 S/F	0928.7	0929.2	1				
	33	UPIC	4 S/F	0929	0929.2	.9				
	9100	ARCE	40 F	1012.7	1014.7	13.5				
	113	POTS	45 C	1041.1	1041.5	1.1	250	50		
	29	UPIC	8 S	1122.5	1122.8	.4				
	33	UPIC	8 S	1122.6	1122.7	.4				
	113	POTS	45 C	1122.6	1122.7	.4	175	40		
	930	BORD	8 S	1336.8	1336.8	.3	42	2		
	113	POTS	45 C	1338.1	1346.1	18	200	10		
	237	TRST	42 SER	1339.2	1341.8	2.9	150			3L
	9100	ARCE	4 S/F	1343	1343.8	1.8				
	9100	ARCE	1 S	1348.7	1348.8	.8				
	930	BORD	42 SER	1402	1405.8	4.1	192	2		
	2800	OTTA	20 GRF	1510	1523	55	2.4	1.2		
	2800	OTTA	20 GRF	1827	1835	20	2.4	1.2		
	2800	OTTA	8 S	1913.9	1913.9	.1E	4.8			
	100	HIRA	44 NS	2035 E	0245	710 D	140	50		HL
	200	HIRA	44 NS	2035 E	2154	710 D	400	15		HL
	2800	OTTA	21 GRF	2037	2040	30	6	3		
	2800	OTTA	1 S	2052	2053	2	2.4	1		
	2800	OTTA	40 F	2056.4	2056.4	.6	12.6			
	2800	OTTA	21 GRF	2110	2205	170 D	6.4			
	500	HIRA	27 RF	2118	2205	90	80	20		SL
	100	HIRA	27 RF	2121	2203	218	480	250		SL
	200	HIRA	27 RF	2121	2154	70	400	100		MLHR
	2800	OTTA	1A S	2122	2124	9	9.4	5		
	2800	OTTA	1 S	2125.5	2126.3	1.5	6.6	3		
	1420	BOUL	28 PRE	2200 E	2205	5 D	7	2		
	2800	OTTA	8 S	2205.5	2205.5	.1E	22.8			
	1420	BOUL	45 C	2205	2208	7.5D	48	16		
27	200	GORK	44 NS	0400 E		225		10		
	100	GORK	44 NS	0406 E		530		30		
	202	IZMI	43 NS	0700		300	70			
	127	TORN	44 NS	0710 E	1005.7	458 D	180	60		V2
	33	UPIC	43 NS	0725.7	1448.2	454.5				
	29	UPIC	43 NS	0725.7	1448.5	454.3				
	200	GORK	44 NS	0900 E		237		15		
	410	SGMR	44 NS	1040 E	1647.5	560 D	24.4			3,CONT
	245	SGMR	44 NS	1040 E	1651.9	560 D	42.7			3,CONT
	6100	KISV	4 S/F	0632	0633	3	7			
	3100	CRIM	1 S	0633	0634	4	4.5	1		
	6100	KISV	8 S	0704	0704.5	2	7			
	100	GORK		0709.6	0726.5		25000			
	100	GORK	46 C	0709.6	0725.5	38	4000			
	234	POTS	45 C	0710	0830	270	70	39		
	3100	CRIM	45 C	0711	0724	27	66	22		
	3100	CRIM		0711	0735		46	15		
	3100	CRIM		0711	0731		48	16		
	3100	CRIM	29 PBI	0711	0738	12	32	11		
	113	POTS	45 C	0712	0726	288	350	60		
	200	GORK		0713.7	0736.8		4000			
	200	GORK	46 C	0713.7	0727	34	120			
	650	GORK		0715	0721.8		50			
	650	GORK	46 C	0715	0720.2	9	130			

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	6100	KISV	3 S	0715	0724	23	64			
	1470	BERL	46 C	0715	0732	31	24			
	2650	DWIN	45 C	0715	0725	30	60	40		
	3000	BERL	46 C	0716	0723.9	29	62			
	9100	GORK	21 GRF	0717.5	0732.3	146	25	9		
	2950	GORK	20 GRF	0718	0724.4	23	45	20		
	8900	BERN	22	0718.5	0724.5	26	30			
	8400	BERN	22	0718.5	724.5	26	34			
	10400	BERN	22	0718.5	724.5	26	24			
	9100	ARCE	20 GRF	0718.8	0724.8	55				
	9500	BERL	22 GRF	0719	0725	37	20			
	9100	GORK	1 S	0723	0724.9	3.7	14	7		
	29	UPIC	48 C	0725.7	0729.5	21.8				
	33	UPIC	48 C	0725.7	0729.7	25.5				
	3100	CRIM	47 GB	0813	0830	19	75	25		
	3100	CRIM	30 PBI	0813	0832	71	12	4		
	9100	ARCE	21 GRF	0824.6	0834.1	86				
	2650	DWIN	45 C	0825	0830	10	65	30		
	3000	BERL	4 S/F	0825	0830.2	35	65			
	1415	MANI	4 S/F	0826.1	0830.5	7.3	21.7	7.2		
	4995	MANI	4 S/F	0826.4	0830.4	8.6	52.8	17.6		
	9500	BERL	4 S/F	0826	0830	44	26			
	1470	BERL	4 S/F	0826	0830.3	9	26			
	2695	MANI	4 S/F	0827.2	0830.3	6.3	55.7	18.6		
	6100	KISV	45 C	0828	0830	57	110			
	8900	BERN	46	0828.5	0830	38	41			
	8400	BERN	46	0828.5	830	38	42			
	10400	BERN	46	0828.5	830	38	29			
	9100	GORK	1 S	0829.4	0830.2	2.8	23	11.5		
	9100	ARCE	3 S	0829.6	0830.3	3.6				
	3100	CRIM	1 S	0848	0848.5	1	7.5	2		
	100	GORK	27 GF	0900 E	0906	90	2500			
	9100	ARCE	8 S	1248.6	1248.8	.6				RECORDDISTURBED
	9100	ARCE	40 F	1250	1250.6	4				
	7000	SAOP	46 C	1429.6	1439.6		189			13R
	228	HARS	28 PRE	1430	1437.5	8	215			
	245	SGMR	49 GB	1430.5	1456		1980			4,CONT,SWF
	245	SGMR	49 GB	1430.5	1445.9	55.7	1100	792		4,CONT,SWF
	410	SGMR	49 GB	1430.5	1506.4		681			4,CONT,SWF
	410	SGMR	49 GB	1430.5	1447.2	52.3	505	272		4,CONT,SWF
	8400	BERN	45	1432	1439.4	59	149			
	10400	BERN	45	1432	1439.4	59	135			
	8900	BERN	45	1432	1439.4	59	141			
	1470	BERL	46 C	1432	1440.3	42	280			
	2695	SGMR	45 C	1432.3	1439.6	44.7	420	168		4,CONT,SWF
	2695	SGMR	45 C	1432.3	1459		180			4,CONT,SWF
	1415	SGMR	45 C	1432.5	1506.7		189			4,CONT,SWF
	1415	SGMR	45 C	1432.5	1440.3	45.5	315	126		4,CONT,SWF
	4995	BOUL	45 C	1433.5	1440	54.5	224	72		
	2800	OTTA	46F C	1433.5	1439.6	46.5	406	85.4		
	2800	OTTA		1433.5	1439.5	10	406			
	3000	BERL	46 C	1433.5	1439.6	57	355			
	4995	SGMR	45 C	1433.7	1459.5		95.7			4,CONT,SWF
	4995	SGMR	45 C	1433.7	1439.5	43.3	277	111		4,CONT,SWF
	9100	ARCE	45 C	1433.8	1439.8	21.5				
	930	BORD		1433	1443		484			
	930	BORD	47 GB	1433	1506.8	52	640	106		
	113	POTS	45 C	1433	1456	102	350			
	234	POTS	45 C	1433	1456	54	1650	200		
	8800	SGMR	3 S	1434.2	1439.7	40.8	136	54.4		4,CONT,SWF
	606	SGMR	47 GB	1434.2	1506.8		1490			4,CONT,SWF
	606	SGMR	47 GB	1434.2	1443	46.8	942	596		4,CONT,SWF
	1420	BOUL	28 PRE	1434.5E	1437 U	2.50	15	5		
	2650	DWIN	49 GB	1434		50	300 D			
	9400	HUAN	C	1435	1439.4	45	135.5	67.5		L
	2695	BOUL	28 PRE	1435.5E	1436.5U	2 D	10	3		
	9500	BERL	46 C	1436	1439.5	70	85			
	15400	SGMR	3 S	1436.2	1439.5	37.8	75.6	30.2		4,CONT,SWF
	10715	DWIN	40 F	1436	1439	80	100	50		
	2695	BOUL	45 C	1437.5	1440.5	30.5	446	148		
	1420	BOUL	45 C	1437	1440	33	268	89		
	18	HOMA	42 SER	1437	1457	20			2	
	228	HARS	47 GB	1438	1445	24.5	1450	375		
	2800	OTTA		1443.5	1445	10	200			
	33	UPIC	46 C	1446.6	1448.2	5.5				
	29	UPIC	46 C	1446.7	1448.5	5.1				
	2800	OTTA		1453.5	1459	26.5	145			
	9100	ARCE	29 PBI	1455.3	1459.7	64				
	228	HARS	1 S	1502.5	1506	4	680	300		
	228	HARS	1 S	1506.5	1507	3.5	625	275		
	2695	BOUL	30 PBI	1508	1508	10 D	53	18		
	1420	BOUL	30 PBI	1509.5	1509.5	17 D	39	13		
	9400	HUAN	PBI	1520	1520	36.1	24.2	11.8		0
	2800	OTTA	29 PBI	1520	1520	280	15.8	7.4		
	930	BORD	PBI	1525	1525	35	25	10		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	4995	SGMR	20	GRF	1719	1726.7	20	13.5	5.4		CONT,SWF
	9400	HUAN		S	1721	1739.8	56.5	17.7	5		O
28	200	HIRA	46	C	0434	0436	2.8	600	50		WL
	100	HIRA	46	C	0434	0434.5	2	1000	300		WL
	500	HIRA	46	C	0434.2	0435.6	1.5	18	10		WL
	1400	SYDN	45	C	0434.4	0435.5	1.6				
	700	SYDN	45	C	0434.5	0435.5	1.5				
	202	IZMI	41	F	0632	0633	1.3	30			
	33	UPIC	45	C	0632.2	0633.5	2.1				
	113	POTS	45	C	0632.2	0633.4	1.8	700	35		
	29	UPIC	45	C	0632.3	0633.6	1.8				
	9100	ARCE	1	S	0853.5	0853.7	.8				
	9100	ARCE	1	S	0856.5	0856.6	.5				
	33	UPIC	4	S/F	0929.8	0930.1	.8				
	29	UPIC	4	S/F	0929.8	0930.1	.7				
	113	POTS	45	C	0929.8	0930	1.2	315	25		
	2650	DWIN	3	S	0952	0953	8	30	15		
	234	POTS	45	C	0956.6	0958.2	3.9	240	20		
	3100	CRIM	2	S	0957	0959	4	31	10		
	650	GORK	29	PBI	0957.2	1003	15.5	1.5			
	650	GORK	1	S	0957.2	0959.2	5.8	3			
	950	GORK	29	PBI	0957.3	1005.2	18.7	4.5			
	950	GORK	3	S	0957.3	0958.9	7.8	29			
	408	TRST	42	SER	0957.4	0957.6	.7	140			
	237	TRST	41	F	0957.5	0958.2	1.7	415			O
	3000	BERL	2	S/F	0957.5	0958.7	7.5	22			
	228	HARS	45	C	0957.5	0958	1.5	180	50		
	2950	GORK	29	PBI	0957.8	1000	16.7	7.8	4		
	2950	GORK	3	S	0957.8	0958.2	2.1	24	12		
	930	BORD	3	S	0957	0959	11	24	9		
	410	SGMR	44	NS	1041 E	1129	559 D	15			5
	245	SGMR	44	NS	1041 E	1401.1	559 D	136			5
	237	TRST	41	F	1128.7	1128.8	.3	155			O
	9100	ARCE	3	S	1214.3	1214.6	.8				
	33	UPIC	45	C	1358.8	1401.9	3.7				
	113	POTS	2	S/F	1359.4	1401.3	5.1	280	15		
	228	HARS	45	C	1400	1401	1.5	475	70		
	29	UPIC	45	C	1400.1	1402.1	2.6				
	234	POTS	45	C	1400.1	1401.4	2	250	10		
	237	TRST	41	F	1400.3	1401.3	1.6	355			O
	2800	OTTA	20	GRF	1807	1900	130	2.4	1.4		
	2800	OTTA	20	GRF	2050	2225	195	4.6	2.6		
29	33	UPIC	45	C	0821.3	0822.1	1.2				
	29	UPIC	45	C	0821.3	0822.3	1.2				
	202	IZMI	41	F	0821.5	0822	1	43			
	33	UPIC	45	C	0844.3	0844.8	1				
	29	UPIC	45	C	0844.5	0845.1	1				
	202	IZMI	5	S	0844.8	0845	.4	44	20		
	29	UPIC	48	C	0940.8	0944.1	14				
	33	UPIC	48	C	0940.9	0943.8	13.8				
	127	TORN	46	C	0940.9	1044.4	7.2	120			
	3000	BERL	20	GRF	0940	0951.3	50	9.2			
	8900	BERN	22		0941.5	0955.5	50	17			
	10400	BERN	22		0941.5	955.5	50	16			
	8400	BERN	22		0941.5	955.5	50	17			
	202	IZMI	41	F	0942.5	0944	3.5	40			
	9500	BERL	20	GRF	0943	0951	32	11			
	15000	KISV	20	GRF	0945	0953	25	13			
	9100	GORK	20	GRF	0945.5	0955.5	24.3	11	3.5		
	6100	KISV	20	GRF	0947	0959	44	15			
	8900	BERN	22		1042.2	1146.6	160	19			
	10400	BERN	22		1042.2	1146.6	160	20			
	8400	BERN	22		1042.2	1146.6	160	20			
	930	BORD			1046	1048.6		26			
	930	BORD	23	GRF	1046	1052	17	8	4		
	1470	BERL	3	S	1047.5	1048.7	1.5	16			
	9100	GORK	24	R	1048.4		98				
	9500	BERL	20	GRF	1100	1134	85	10			
	1470	BERL	20	GRF	1120	1124	60	10			
	3000	BERL	20	GRF	1120	1124	60	5.3			
	930	BORD	3	S	1120	1124	9	10	5		
	2800	OTTA	21	GRF	1140	1203	140 D	9	4.5		
	237	TRST	41	F	1258.5	1258.8	.4	110			O
	2800	OTTA	1	S	1334	1335	2	6	2.8		
	237	TRST	41	F	1514	1514.1	.3	255			O
	2800	OTTA	22	GRF	1645	1730	100	2	1		
	2800	OTTA	26	FAL	1840	1900	20	-3	-1.5		
	2695	PENT	22	GRF	2040	2210	220	3.6	1.6		
30	2800	OTTA	240	R	1433	1503	30	2.4	1.2		
	2800	OTTA	20	GRF	1730	1740	18	1.8	.9		
	2800	OTTA	20	GRF	1753	1820	95	2.4	1.6		
	2695	PENT	20	GRF	2330	2333	20	5.6	2.8		

Reports received from the following observatories:

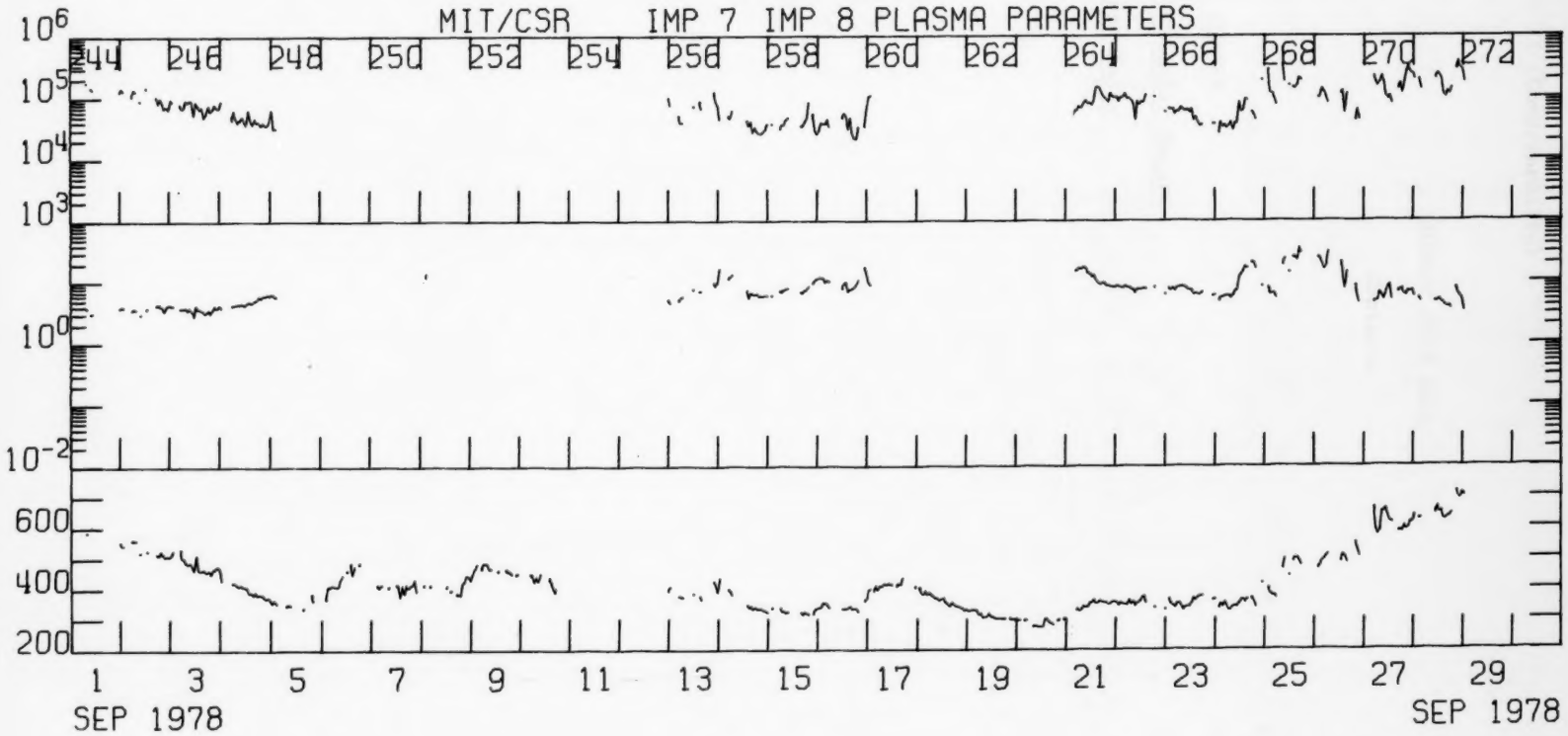
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 7 AND 8 SOLAR WIND PLASMA

SEPTEMBER 1978



SGD 415 Part II (Comprehensive)

AUGUST 1978 DATA

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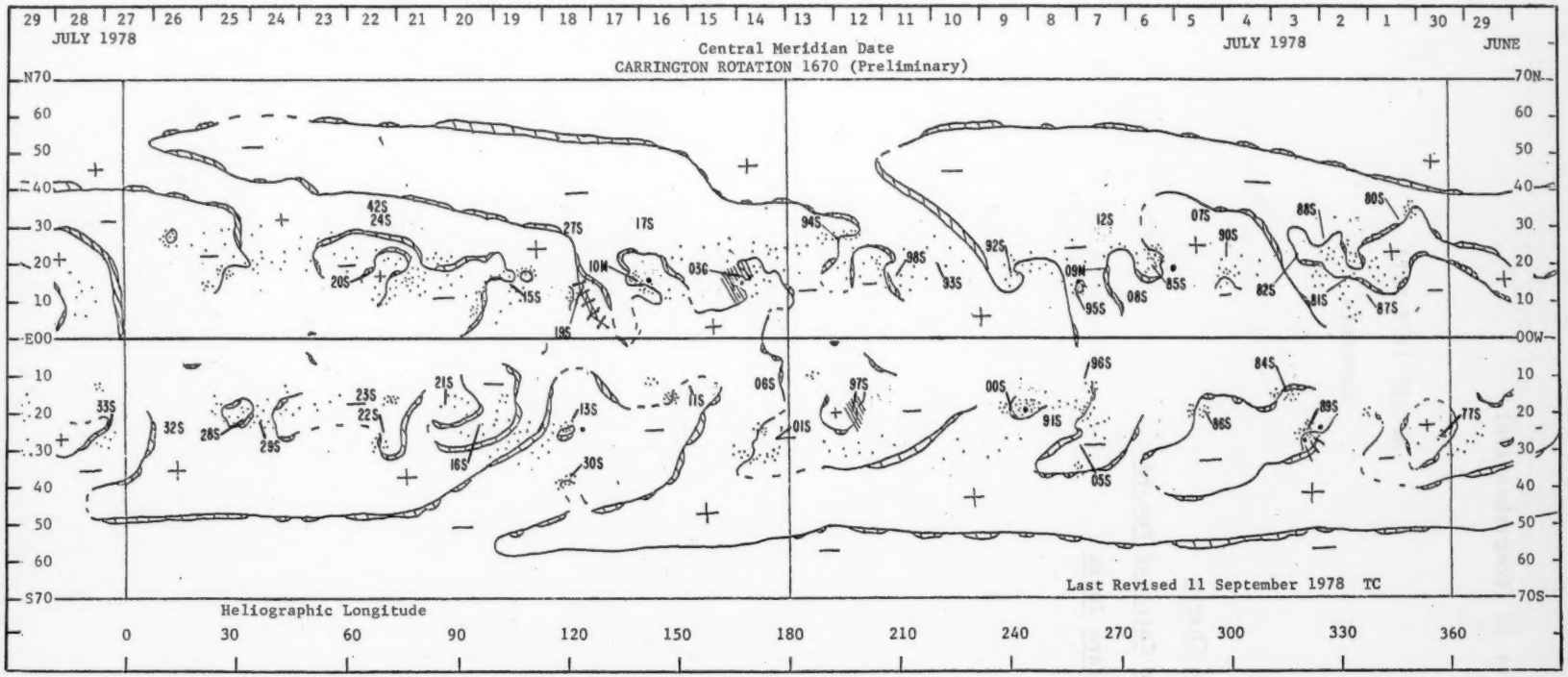
ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

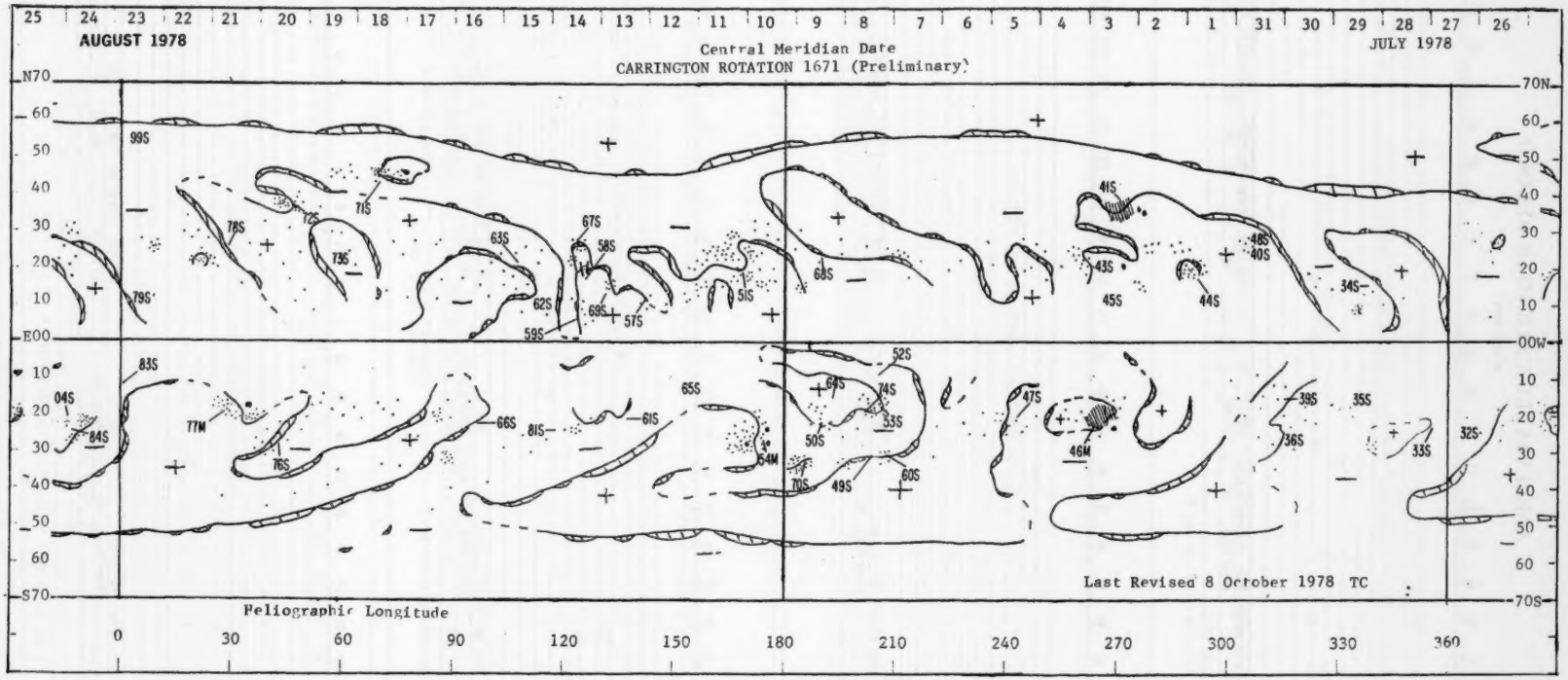
JUNE - JULY 1978



ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

JULY - AUGUST 1978



ABBREVIATED CALENDAR RECORD

AUGUST 1978

August 1, 1978

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm; dm; m — noise storm; Dkm

SID

X-Rays

Ap 404 — Kp: 1- | 1o | 1o | 1+ | 1- | 0+ | 1+ | 2-; sc

Aurora: USSR; DMS

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- moderately bright; SE-; W. Limb 7 days later: NW- no data; SW- no data

Indices: Rz: 42; 10cm flux: 103; Flare: 7/23.1; Ca: 15.2; Ip: 0; Ia: 0

Solar Regions: 15444 N18

Sunspots: (20153) N18 (αp) 4 CMP Aug. 2

August 2, 1978

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm; dm; m — noise storm; Dkm

SID

X-Rays

Ap 406 — Kp: 1- | 0+ | 0o | 0+ | 1- | 1o | 2o | 2o; sc

Aurora: USSR; DMSP

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- no data; SE no data; W. Limb 7 days later: NW- no data; SW- no data

Indices: Rz: 48; 10cm flux: 103; Flare: 0/22.6; Ca: 16.6; Ip: 0; Ia: 0

Solar Regions

Sunspots

August 3, 1978

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm; dm; m — noise storm; Dkm

SID

X-Rays

Ap 16 — Kp: 2- | 3- | 2+ | 3o | 3+ | 4- | 4- | 4o; sc

Aurora: USSR; DMSP

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- bright; SE-; W. Limb 7 days later: NW- no data; SW- no data

Indices: Rz: 38; 10cm flux: 106; Flare: 14/23.1; Ca: 15.6; Ip: 0; Ia: 0

Solar Regions: 15441 N36 (2); (15445) N10; 15443 N21 (2); 15446 S23

Sunspots: 20151 N35 (αp) 3 CMP Aug. 2; 20152 N19 (αp) 4; (20161) N25 (αf) 2 CMP Aug. 4; 20154 S23 (βp) 4

August 4, 1978

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm; dm; m; Dkm

SID

X-Rays

Ap 3005 — Kp: 4+ | 6- | 3o | 5+ | 4+ | 3+ | 3o | 2-; sc

Aurora: USSR; DMSP

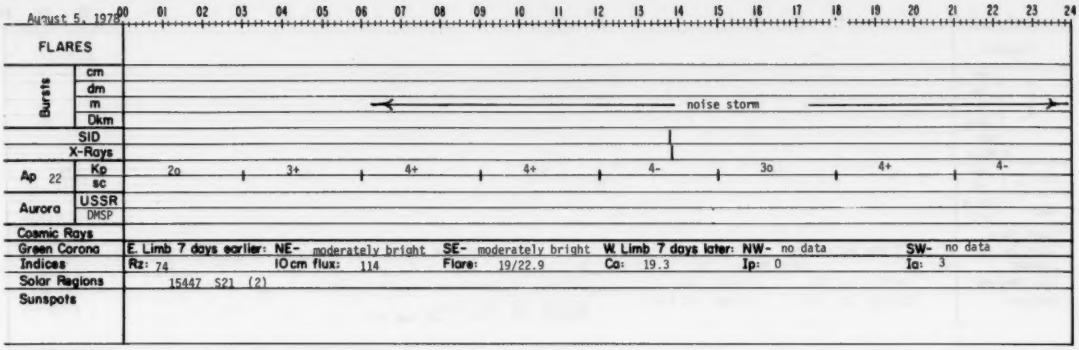
Cosmic Rays

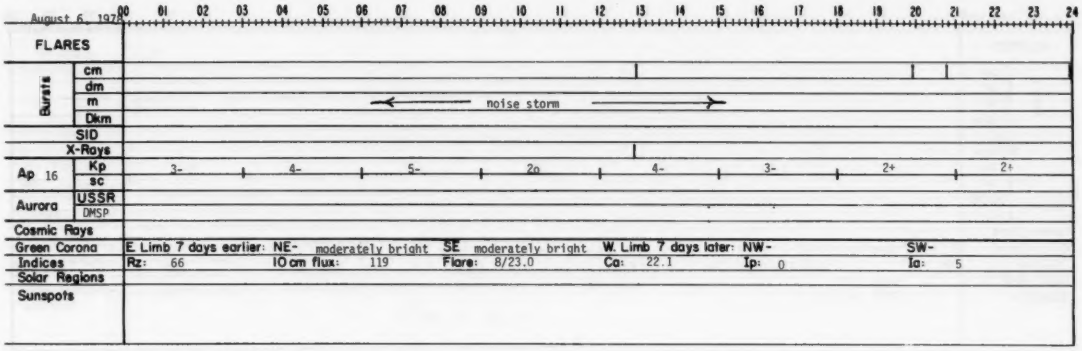
Green Corona: E. Limb 7 days earlier: NE- bright; SE; W. Limb 7 days later: NW- no data; SW- no data

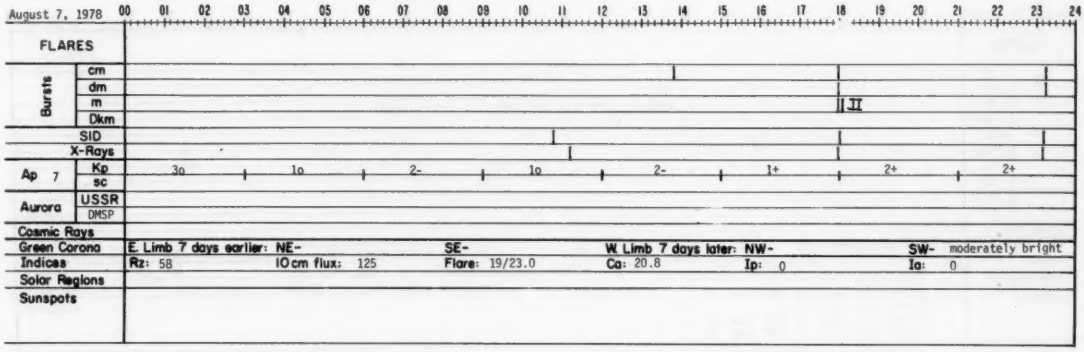
Indices: Rz: 62; 10cm flux: 109; Flare: 15/23.6; Ca: 19.0; Ip: 0; Ia: 0

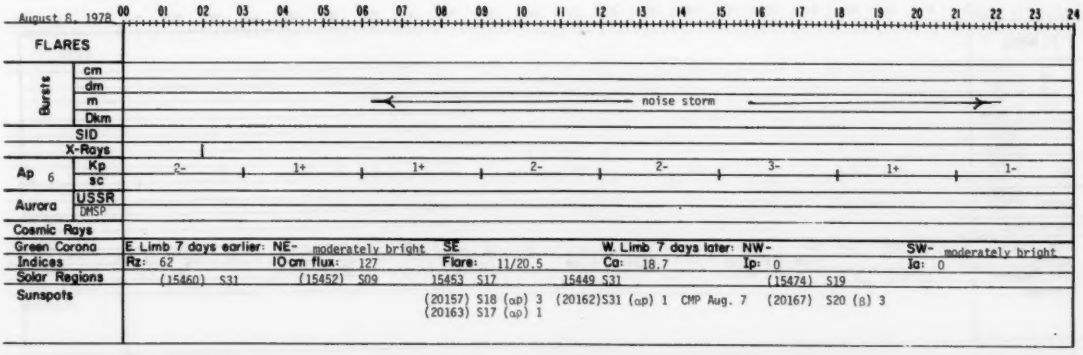
Solar Regions

Sunspots


August 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 22
Kp
2o 3+ 4+ 4+ 4- 3o 4+ 4-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 74 10cm flux: 114 Flare: 19/22.9 Ca: 19.3 Ip: 0 Ia: 3
Solar Regions
15447 S21 (2)
Sunspots


August 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 16
Kp
3- 4- 5- 2o 4- 3- 2+ 2+
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE moderately bright W. Limb 7 days later: NW- SW-
Indices
Rz: 66 10cm flux: 119 Flare: 8/23.0 Ca: 22.1 Ip: 0 Ia: 5
Solar Regions
Sunspots


August 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m II
Dkm
SID
X-Rays
Ap 7
Kp
3o 1o 2- 1o 2- 1+ 2+ 2+
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 58 10cm flux: 125 Flare: 19/23.0 Ca: 20.8 Ip: 0 Ia: 0
Solar Regions
Sunspots


August 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6
Kp
2- 1+ 1+ 2- 2- 3- 1+ 1-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 62 10cm flux: 127 Flare: 11/20.5 Ca: 18.7 Ip: 0 Ia: 0
Solar Regions
(15460) S31 (15452) S09 15453 S17 15449 S31 (15474) S19
Sunspots
(20157) S18 (αp) 3 (20162)S31 (αp) 1 CMP Aug. 7 (20167) S20 (β) 3
(20163) S17 (αp) 1

August 9, 1978

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 508 — Kp: 1o 1+ 1+ 2- 1o 1o 1+ 1+ — sc

Aurora: USSR, DMSP

Cosmic Rays

Green Corona

Indices: E. Limb 7 days earlier: NE- no data; SE- no data; W. Limb 7 days later: NW- moderately bright; SW- bright
Rz: 64; 10cm flux: 125; Flare: 22/22.2; Ca: 19.2; Ip: 0; Ia: 0

Solar Regions: (15450) S22 (2); (15468) N23; (15470) S32

Sunspots: (20158) S21 (β) 1; (20168) N21 (αp) 2; (20169) S32 (β) 3; (20173) S35 (αf) 3 CMP Aug. 10

August 10, 1978

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 6 — Kp: 1+ 1+ 1+ 2- 2+ 1+ 1+ 2+ — sc

Aurora: USSR, DMSP

Cosmic Rays

Green Corona

Indices: E. Limb 7 days earlier: NE- bright; SE moderately bright; W. Limb 7 days later: NW- moderately bright; SW- bright
Rz: 67; 10cm flux: 124; Flare: 41/23.6; Ca: 19.4; Ip: 0; Ia: 0

Solar Regions: 15454 S27

Sunspots: 20159 S28 (βγ) 4

August 11, 1978

FLARES

Bursts: cm, dm, m, Dkm — noise storm

SID

X-Rays

Ap 11 — Kp: 3- 2- 1+ 2- 3o 4o 3- 1+ — sc

Aurora: USSR, DMSP

Cosmic Rays

Green Corona

Indices: E. Limb 7 days earlier: NE- no data; SE- no data; W. Limb 7 days later: NW- moderately bright; SW- bright
Rz: 58; 10cm flux: 118; Flare: 59/22.9; Ca: 21.6; Ip: 0; Ia: 0

Solar Regions: 15451 N20 (3)

Sunspots: 20164 N15 (βγ) 4 CMP Aug. 10; (20160) N18 (β) 2; (20165) N17 (αp) 1 CMP Aug. 12; 20166 N15 (γ) 2 CMP Aug. 12; (20174) N26 (αf) 2

August 12, 1978

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 21 — Kp: 2+ 4- 5o 5- 3o 3o 2o 3o — sc

Aurora: USSR, DMSP

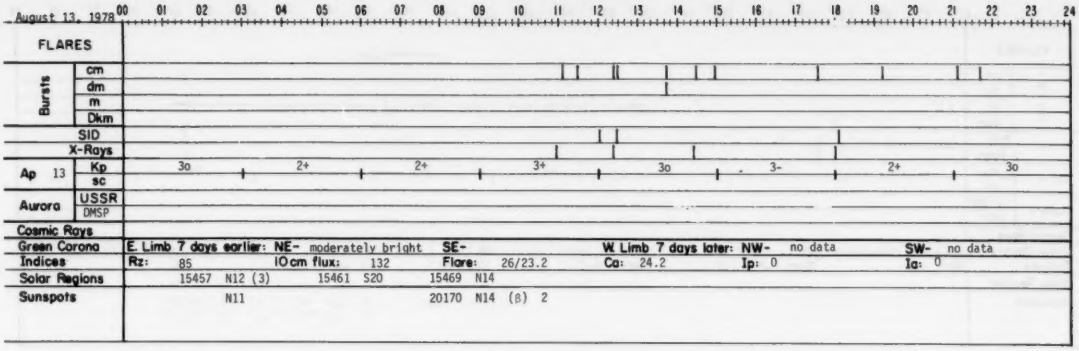
Cosmic Rays

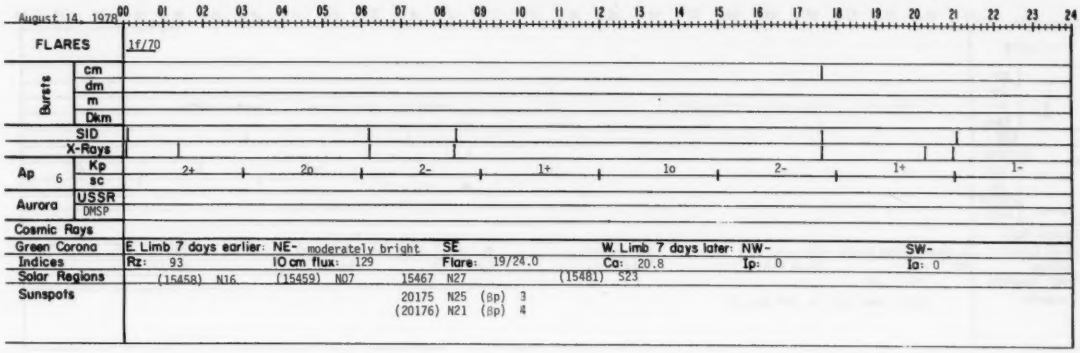
Green Corona

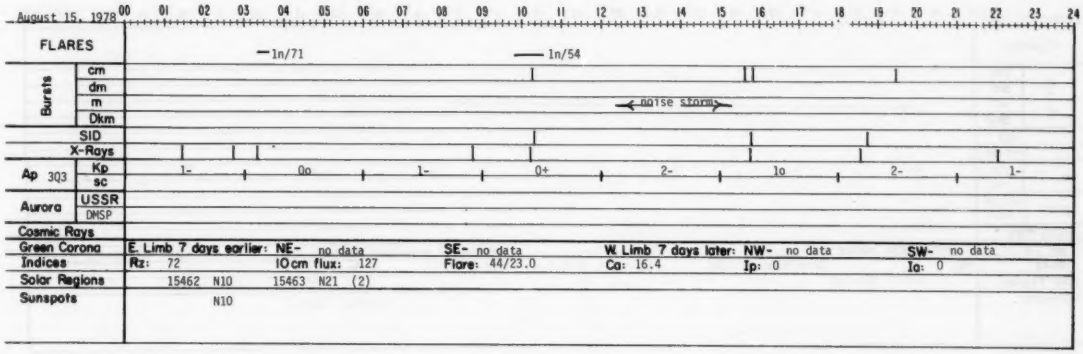
Indices: E. Limb 7 days earlier: NE- moderately bright; SE moderately bright; W. Limb 7 days later: NW- no data; SW- no data
Rz: 71; 10cm flux: 121; Flare: 41/24.0; Ca: 22.2; Ip: 0; Ia: 0

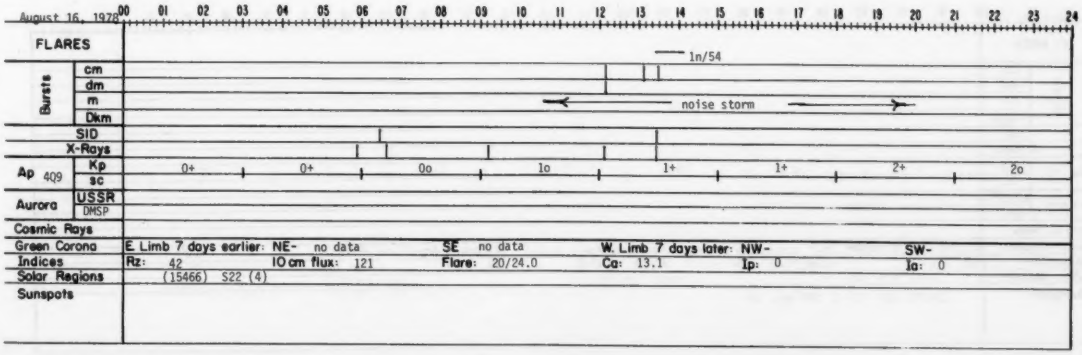
Solar Regions: (15465) S12

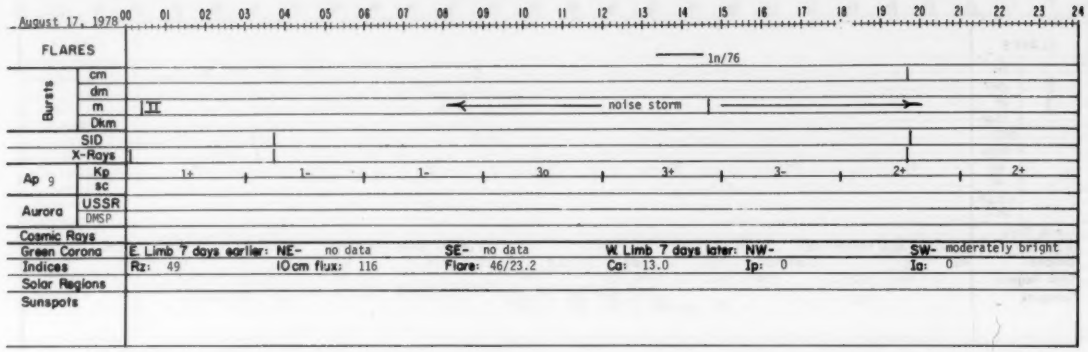
Sunspots

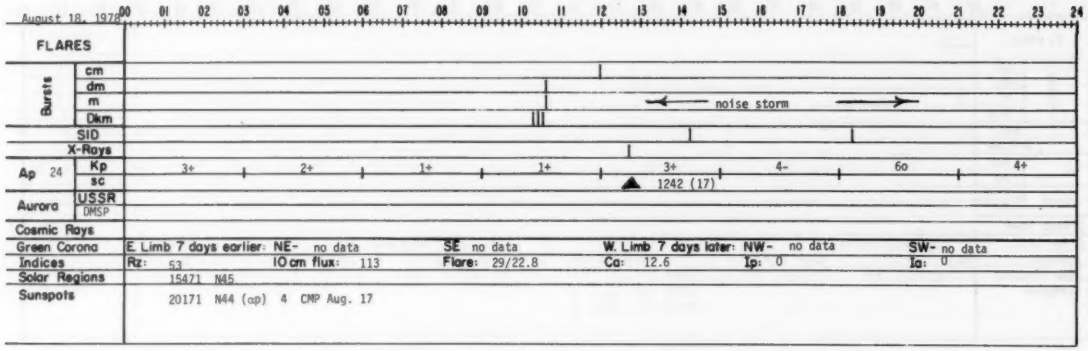

August 13, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 13
Kp
sc
3o 2+ 2+ 3+ 3o 3- 2+ 3o
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 85 10cm flux: 132 Flare: 26/23.2 Ca: 24.2 Ip: 0 Ia: 0
Solar Regions
15457 N12 (3) 15461 S20 15469 N14
Sunspots
N11 20170 N14 (β) 2

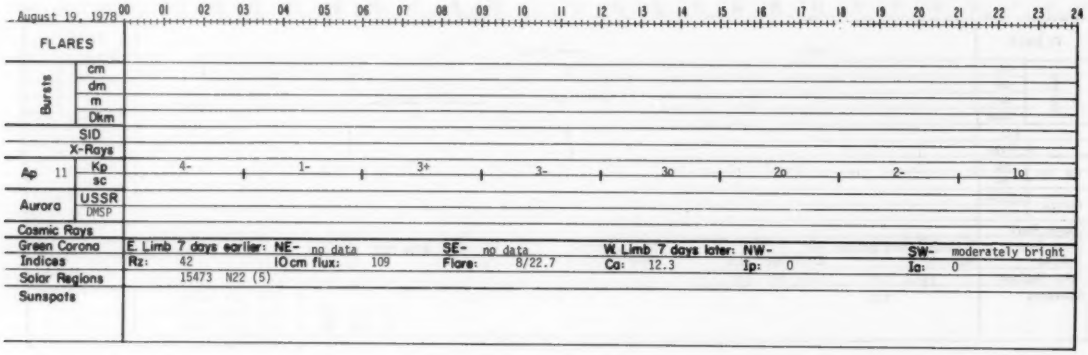

August 14, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/70
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 6
Kp
sc
2+ 2o 2- 1+ 1o 2- 1+ 1-
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- SW-
Indices
Rz: 93 10cm flux: 129 Flare: 19/24.0 Ca: 20.8 Ip: 0 Ia: 0
Solar Regions
(15458) N16 (15459) N07 15467 N27 (15481) S23
Sunspots
20175 N25 (βp) 3
(20176) N21 (βp) 4

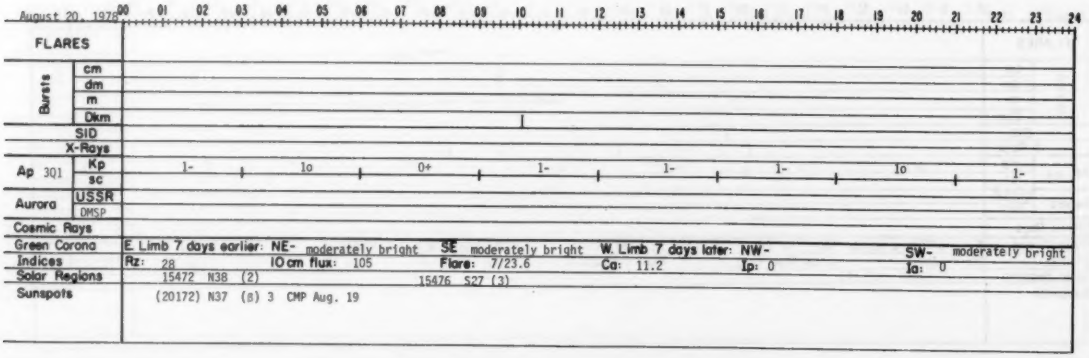

August 15, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/71
1n/54
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 303
Kp
sc
1- 0o 1- 0+ 2- 1o 2- 1-
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 72 10cm flux: 127 Flare: 44/23.0 Ca: 16.4 Ip: 0 Ia: 0
Solar Regions
15462 N10 15463 N21 (2)
Sunspots
N10


August 16, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/54
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 409
Kp
sc
0+ 0+ 0o 1o 1+ 1+ 2+ 2o
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- SW-
Indices
Rz: 42 10cm flux: 121 Flare: 20/24.0 Ca: 13.1 Ip: 0 Ia: 0
Solar Regions
(15466) S22 (4)
Sunspots


August 17, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/76
Bursts
cm
dm
m
Dkm
II
noise storm
SID
X-Rays
Ap 9
Kp
1+ 1- 1- 3o 3+ 3- 2+ 2+
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 49 10 cm flux: 116 Flare: 46/23.2 Ca: 13.0 Ip: 0 Ia: 0
Solar Regions
Sunspots


August 18, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 24
Kp
3+ 2+ 1+ 1+ 3+ 4- 6o 4+
sc
1242 (17)
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 53 10 cm flux: 113 Flare: 29/22.8 Ca: 12.6 Ip: 0 Ia: 0
Solar Regions
15471 N45
Sunspots
20171 N44 (ap) 4 CMP Aug. 17


August 19, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 11
Kp
4- 1- 3+ 3- 3o 2o 2- 1o
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 42 10 cm flux: 109 Flare: 8/22.7 Ca: 12.3 Ip: 0 Ia: 0
Solar Regions
15473 N22 (5)
Sunspots


August 20, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 301
Kp
1- 1o 0+ 1- 1- 1- 1o 1-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE moderately bright W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 28 10 cm flux: 105 Flare: 7/23.6 Ca: 11.2 Ip: 0 Ia: 0
Solar Regions
15472 N38 (2) 15476 S27 (3)
Sunspots
(20172) N37 (8) 3 CMP Aug. 19

August 21, 1978

FLARES

Bursts: cm; dm; m; Dkm

SID

X-Rays

Ap 6 — Kp: 1o 1- 0+ 1- 1- 1+ 2o 4-

sc

Aurora: USSR; DMSP

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- moderately bright SW- moderately bright

Indices: Rz: 26 10cm flux: 102 Flare: 16/24.0 Ca: 11.9 Ip: 0 Ia: 0

Solar Regions: 15478 N25 (3&4) 15477 S19

Sunspots: (20180) N21 (β) 3 CMP Aug. 22 20177 S19 (βp) 4
(20184) N26 (αp) 3 CMP Aug. 22

August 22, 1978

FLARES

Bursts: cm; dm; m: noise storm; Dkm

SID

X-Rays

Ap 6Q10 — Kp: 3- 2+ 1- 1- 2o 1- 1- 1o

sc

Aurora: USSR; DMSP

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- no data SW- no data

Indices: Rz: 36 10cm flux: 104 Flare: 13/23.4 Ca: 12.3 Ip: 0 Ia: 0

Solar Regions

Sunspots

August 23, 1978

FLARES

Bursts: cm; dm; m: noise storm; Dkm

SID

X-Rays

Ap 405 — Kp: 0+ 1o 1- 1- 1- 1+ 2- 2-

sc

Aurora: USSR; DMSP

Cosmic Rays

Green Corona: E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW- SW-

Indices: Rz: 45 10cm flux: 102 Flare: 24/23.6 Ca: 10.1 Ip: 0 Ia: 0

Solar Regions: (15499) N55 (15483) S13

Sunspots: (20178) S13 (β) 2

August 24, 1978

FLARES

Bursts: cm; dm; m; Dkm

SID

X-Rays

Ap 407 — Kp: 2o 1o 1o 1o 1o 1o 1- 1o

sc

Aurora: USSR; DMSP

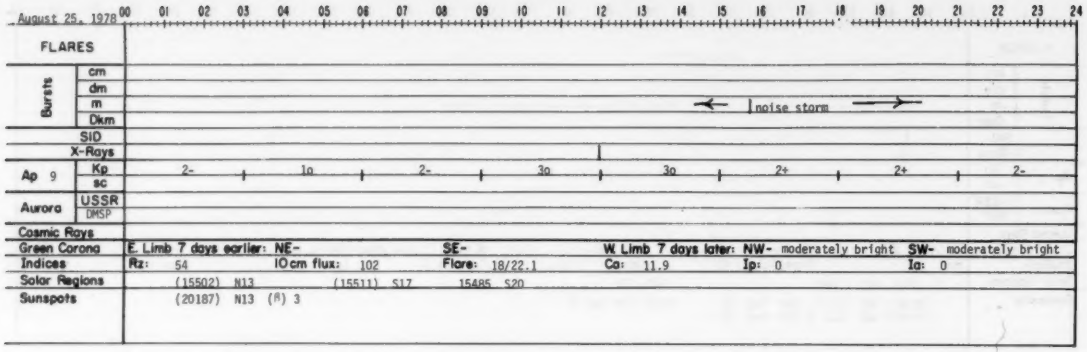
Cosmic Rays

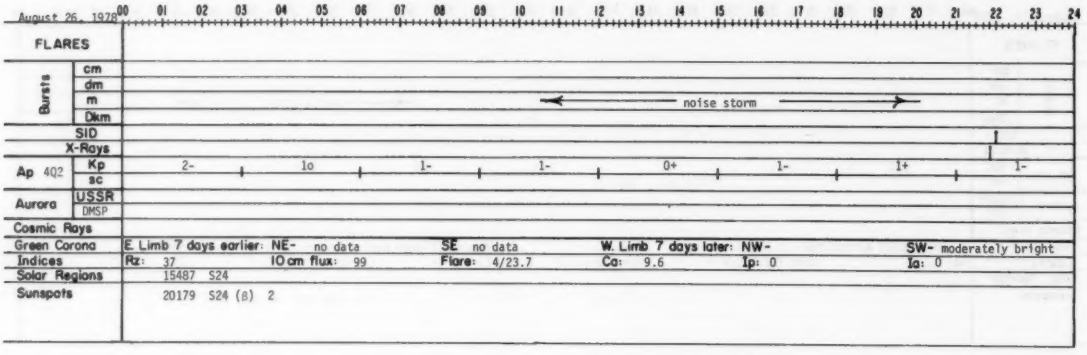
Green Corona: E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- SW- moderately bright

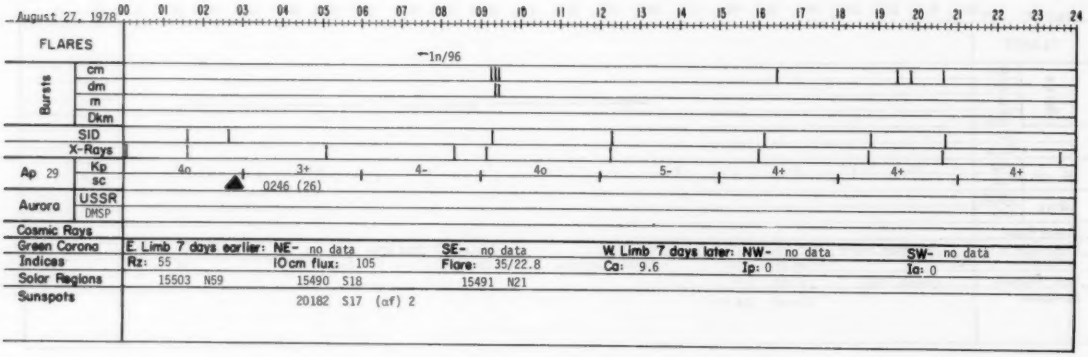
Indices: Rz: 45 10cm flux: 103 Flare: 21/21.3 Ca: 9.8 Ip: 0 Ia: 0

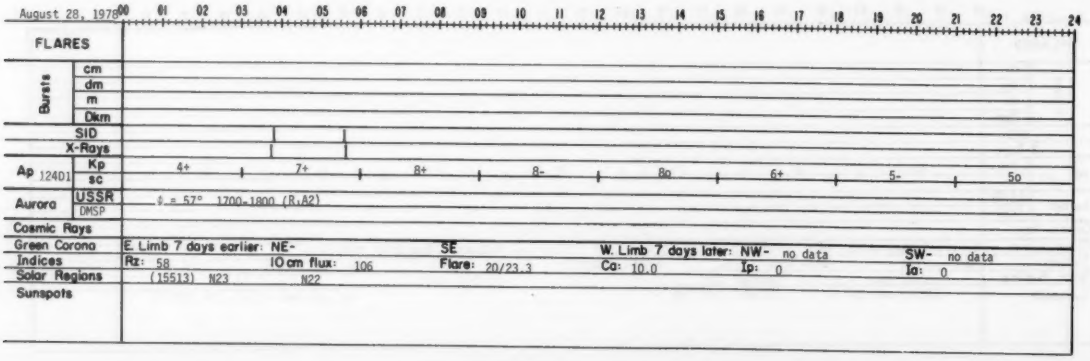
Solar Regions: 15484 S24 (15504) S21

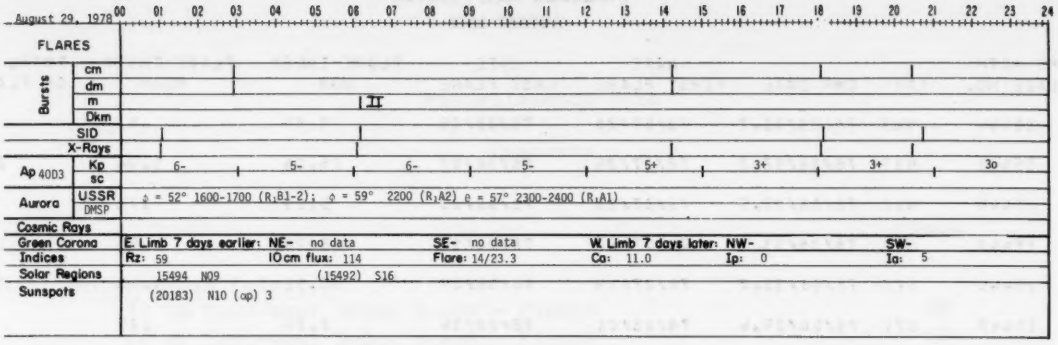
Sunspots: (20181) S26 (αf) 2 (20186) S20 (β) 3

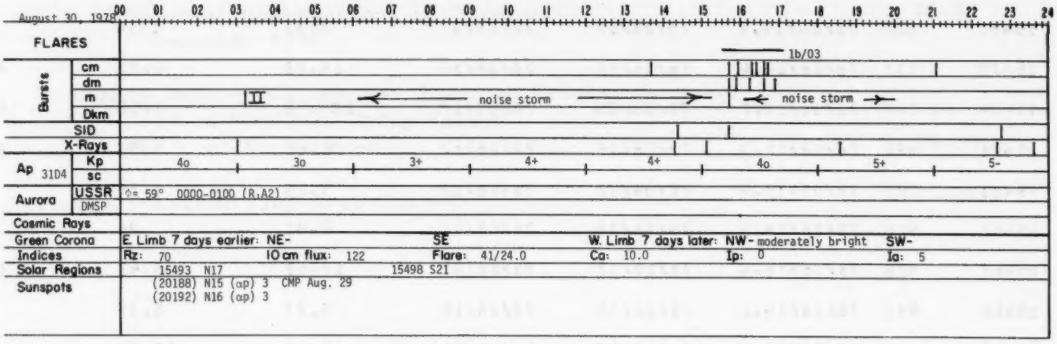

August 25, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9
Kp
2- 1o 2- 3o 3o 2+ 2+ 2-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-
SE-
W. Limb 7 days later: NW- moderately bright
SW- moderately bright
Indices
Rz: 54
10cm flux: 102
Flare: 18/22.1
Ca: 11.9
Ip: 0
Ia: 0
Solar Regions
(15502) N13
(15511) S17
15485 S20
Sunspots
(20187) N13 (β) 3

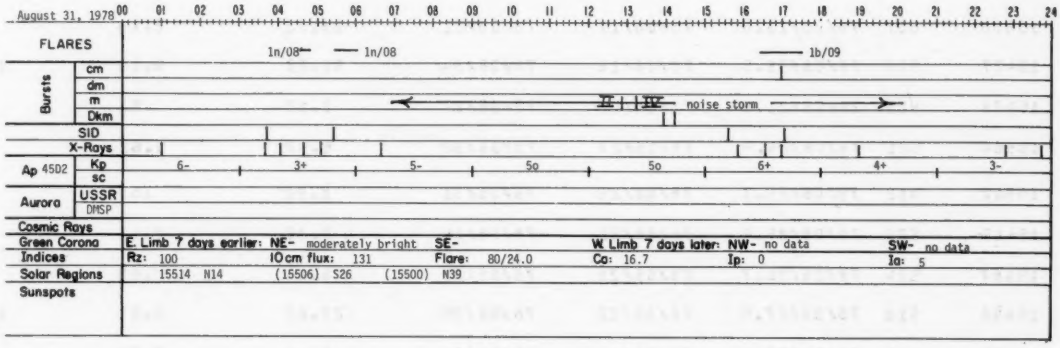

August 26, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 402
Kp
2- 1o 1- 1- 0+ 1- 1+ 1-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE no data
W. Limb 7 days later: NW-
SW- moderately bright
Indices
Rz: 37
10cm flux: 99
Flare: 4/23.7
Ca: 9.6
Ip: 0
Ia: 0
Solar Regions
15487 S24
Sunspots
20179 S24 (β) 2


August 27, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/96
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 29
Kp
4o 3+ 4- 4o 5- 4+ 4+ 4+
sc
0246 (26)
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE- no data
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 55
10cm flux: 105
Flare: 35/22.8
Ca: 9.6
Ip: 0
Ia: 0
Solar Regions
15503 N59
15490 S18
15491 N21
Sunspots
20182 S17 (αf) 2


August 28, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 12401
Kp
4+ 7+ 8+ 8- 8o 6+ 5- 5o
sc
USSR
Φ = 57° 1700-1800 (R,A2)
Aurora
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-
SE
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 58
10cm flux: 106
Flare: 20/23.3
Ca: 10.0
Ip: 0
Ia: 0
Solar Regions
(15513) N23
N22
Sunspots


August 29, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
II
Dkm
SID
X-Rays
Ap 40D3
Kp
6- 5- 6- 5- 5+ 3+ 3+ 3o
sc
Aurora
USSR
DMSP
φ = 52° 1600-1700 (R1B1-2); φ = 59° 2200 (R1A2) φ = 57° 2300-2400 (R1A1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW-
Indices
Rz: 59 10cm flux: 114 Flare: 14/23.3 Ca: 11.0 Ip: 0 Ia: 5
Solar Regions
15494 N09 (15492) S16
Sunspots
(20183) N10 (αp) 3


August 30, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/03
Bursts
cm
dm
m
II
noise storm
noise storm
Dkm
SID
X-Rays
Ap 31D4
Kp
4o 3o 3+ 4+ 4+ 4o 5+ 5-
sc
Aurora
USSR
DMSP
φ= 59° 0000-0100 (R1A2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE W. Limb 7 days later: NW- moderately bright SW-
Indices
Rz: 70 10cm flux: 122 Flare: 41/24.0 Ca: 10.0 Ip: 0 Ia: 5
Solar Regions
15493 N17 15498 S21
Sunspots
(20188) N15 (αp) 3 CMP Aug. 29
(20192) N16 (αp) 3


August 31, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/08
1n/08
1b/09
Bursts
cm
dm
m
II
IV
noise storm
Dkm
SID
X-Rays
Ap 45D2
Kp
6- 3+ 5- 5o 5o 6+ 4+ 3-
sc
Aurora
USSR
DMSP
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 100 10cm flux: 131 Flare: 80/24.0 Ca: 16.7 Ip: 0 Ia: 5
Solar Regions
15514 N14 (15506) S26 (15500) N39
Sunspots

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

AUGUST 1978

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15444	N19	78/08/01.7	78/07/28	78/08/05	3.85	.43	2
15441	N37	78/08/03.3	78/07/26	78/08/07	25.24	1.94	20
15445	N12	78/08/03.5	78/07/28	78/08/03	5.29	.76	2
15443	N22	78/08/03.7	78/07/27	78/08/10	23.28	1.55	13
15446	S23	78/08/03.7	78/07/29	78/08/09	53.51	4.46	31
15447	S21	78/08/05.4	78/08/01	78/08/04	3.39	.85	2
15474	S19	78/08/08.4	78/08/12	78/08/14	18.70	6.23	19
15450	S22	78/08/09.3	78/08/07	78/08/07	3.38	3.38	1
15470	S32	78/08/09.6	78/08/12	78/08/15	28.83	7.21	20
15454	S27	78/08/10.7	78/08/03	78/08/17	129.90	8.66	64
15451	N20	78/08/11.3	78/08/05	78/08/17	71.85	5.53	20
15461	S21	78/08/13.6	78/08/10	78/08/12	5.29	1.76	2
15458	N16	78/08/14.3	78/08/09	78/08/11	2.81	.94	2
15467	N26	78/08/14.4	78/08/17	78/08/21	17.12	3.42	10
15462	N10	78/08/15.1	78/08/15	78/08/15	5.37	5.37	1
15471	N45	78/08/18.9	78/08/13	78/08/17	50.12	10.02	17
15472	N38	78/08/20.3	78/08/12	78/08/17	6.47	1.08	6
15476	S27	78/08/20.8	78/08/17	78/08/21	13.72	2.74	2
15477	S19	78/08/21.5	78/08/16	78/08/24	82.28	9.14	33
15478	N25	78/08/21.6	78/08/22	78/08/27	3.12	.52	3
15504	S21	78/08/24.9	78/08/27	78/08/30	6.47	1.62	5
15502	N12	78/08/25.3	78/08/29	78/08/31	1.90	.63	2
15485	S20	78/08/25.9	78/08/22	78/08/24	7.30	2.43	3
15487	S24	78/08/26.7	78/08/21	78/08/29	6.16	.68	3
15490	S18	78/08/27.5	78/08/22	78/08/25	27.62	6.91	10
15494	N10	78/08/29.2	78/08/24	78/08/31	18.44	2.30	6
15493	N17	78/08/30.2	78/08/23	78/09/02	18.70	1.70	5

Miscellaneous Data

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December 1978	
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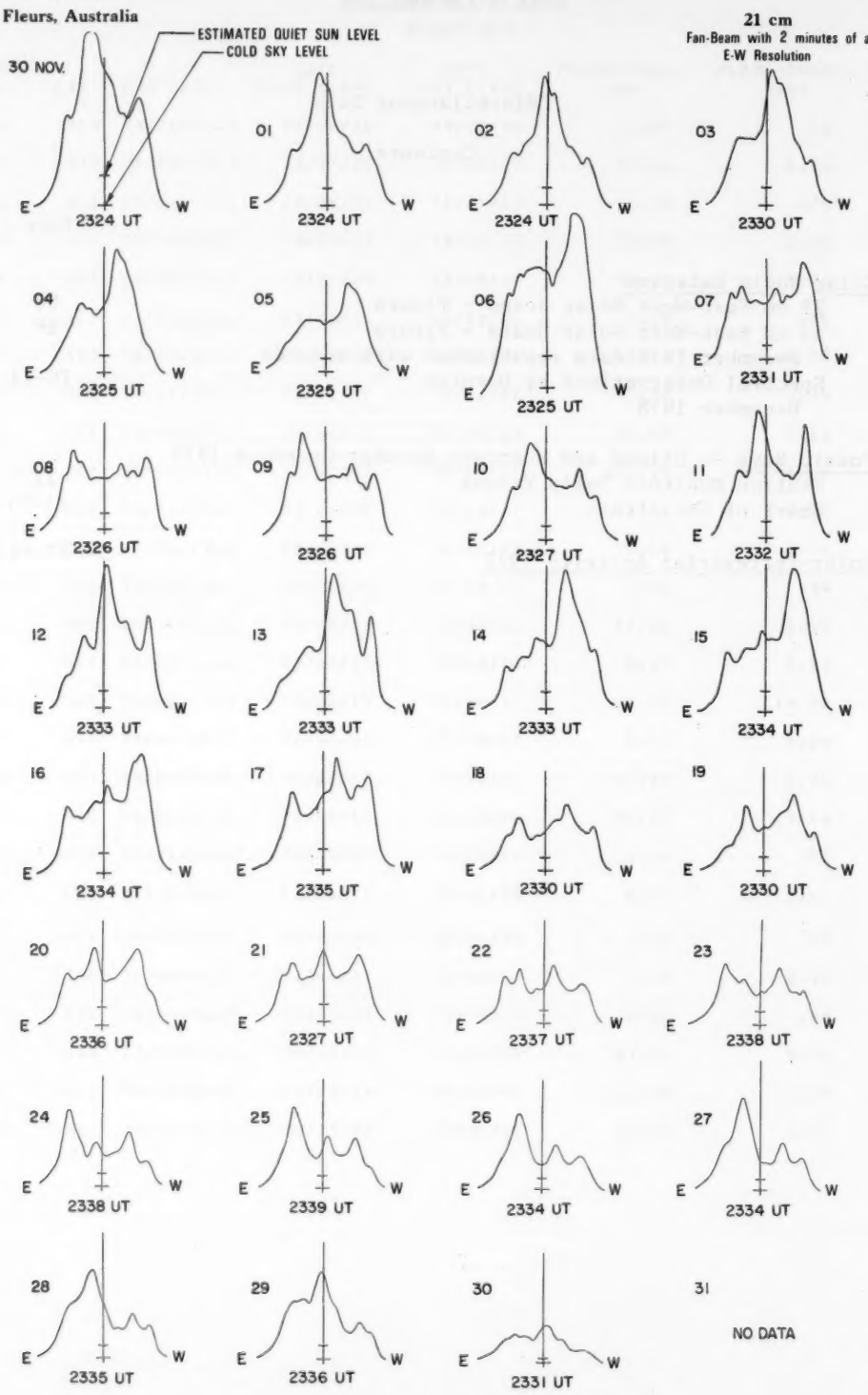
Misc
Dec 78

EAST-WEST SOLAR SCANS

DECEMBER 1978

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

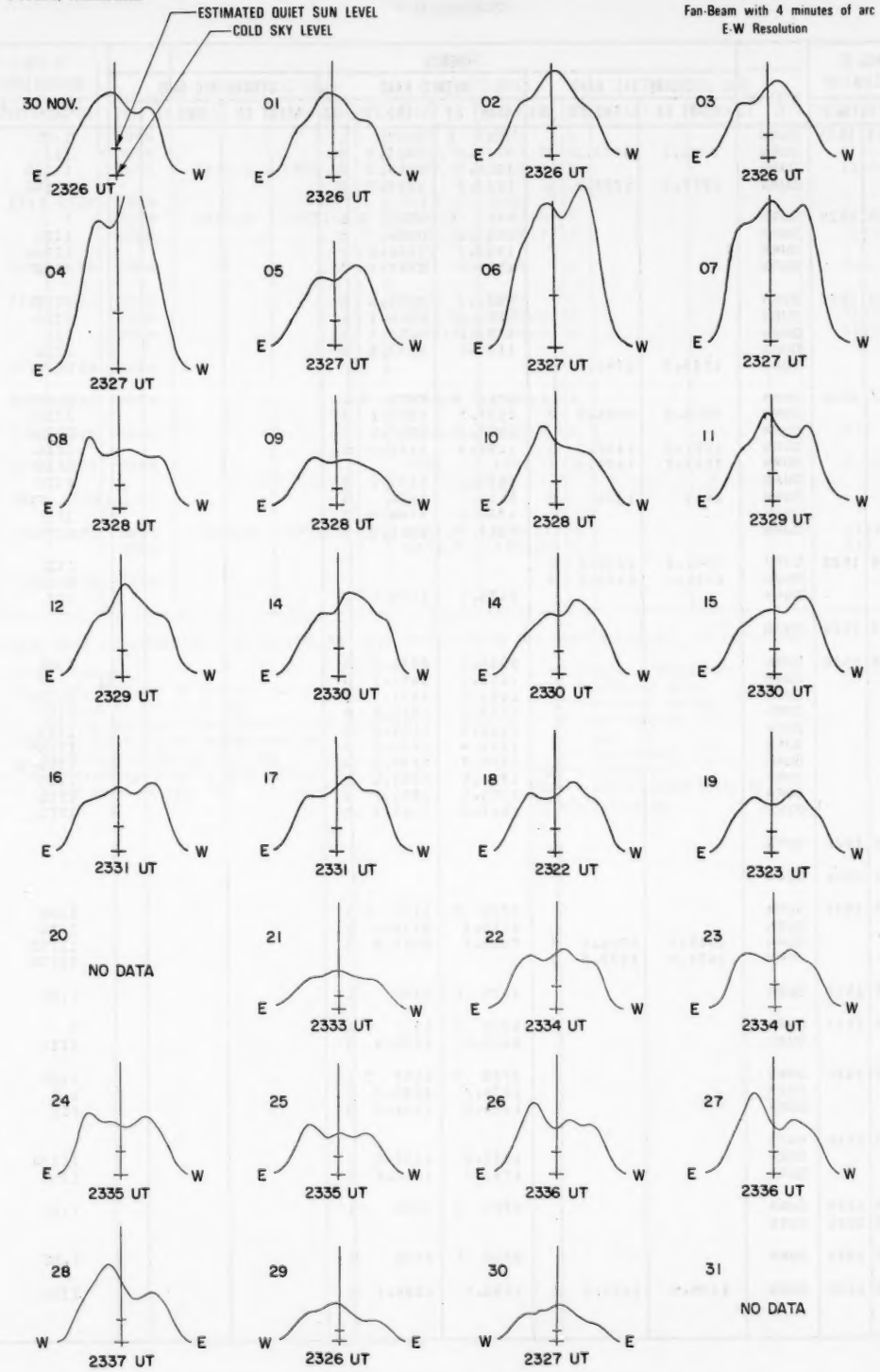


EAST-WEST SOLAR SCANS

DECEMBER 1978

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1978

DEC 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01	0718	1520	DURN				0718 E	1520	1				I,DC
			DURN	0723.1	0723.3	1	0723.1	0723.9	3				IIIG
			DURN				1214.6	1216.2	3				IIIGG
			DURN	1227.2	1228.2	1	1226.2	1229.7	3				IIIGG
02	0719	1520	DURN				0719 E	1520 D	1				I
			DURN				0934.0	0934.7	3				IIIG
			DURN				1503.7	1506.6	3				IIIGG
			DURN				1510.5	1510.8	3				IIIG
03	0719	1520	DURN				1030.2	1030.4	3				IIIG
			DURN				1055.8	1056.0	1				IIIG
			DURN				1102.2	1102.2	3				III
			DURN				1137.5	1137.8	3				IIIG
			DURN	1235.3	1240.0	2							DCIM
04	0717	1520	DURN				0717 E	1520 D	1				I,DC
			DURN	0940.8	0941.2	2	0937.3	0941.1	3				IIIGG
			DURN				1055.0	1057.9	3				IIIGG
			DURN	1101.9	1102.5	1	1101.9	1102.1	3				IIIG
			DURN	1108.2	1109.0	1							IIIG
			DURN				1139.1	1139.1	3				IIIG
			DURN	1144	1324	3	1144	1324	3				IV, P,F
			DURN				1306.1	1306.2	3				IIIG
			DURN				1310.7	1310.9	3				IIIG
05	0749	1520	DURN	0946.2	0946.2	2							IIIG
			DURN	1424.4	1425.8	3							IIIG
			DURN				1429.1	1429.1	2				III
06	0718	1520	DURN										
07	0718	1520	DURN				0904.1	0904.7	3				IIIG
			DURN				1000.2	1002.1	3				II
			DURN				1000.5	1001.9	3				IIIGG
			DURN				1026.6	1026.7	2				III
			DURN				1148.9	1149.1	3				IIIG
			DURN				1208.4	1209.7	3				IIIGG
			DURN				1229.7	1235.6	3				IIIG,N
			DURN				1351.4	1351.5	2				IIIG
			DURN				1353.9	1354.2	3				IIIG
			DURN				1507.1	1507.3	3				IIIG
08	0718	1520	DURN										
09	0718	0950	DURN										
13	0725	1517	DURN				0725 E	1517 D	3				I,DC
			DURN				0732.3	0732.4	3				IIIG
			DURN	0905.7	0906.4	3	0905.7	0907.9	3				IIIGG
			DURN	1431.9	1432.5	3							IIIGG
14	0725	1517	DURN				0725 E	1200	1				I,DC
15	0725	1517	DURN				0725 E	1517 D	1				I
			DURN				0839.8	0839.8	3				IIIG
16	0725	1517	DURN				0725 E	1517 D	1				I,DC
			DURN				1238.2	1238.3	3				II
			DURN				1434.8	1434.8	3				III
17	0727	1516	DURN										
			DURN				1032.2	1032.5	3				III/V
			DURN				1213.7	1213.8	3				IIIG
18	0719	1008	DURN				0719 E	0730	1				I,DC
	1113	1520	DURN										
19	0719	1300	DURN				0719 E	0730	1				I,DC
20	1030	1506	DURN	1036.5	1038.1	3	1038.1	1038.1	3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1978

DEC 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			DURN				1130	1250	1				I
			DURN				1134.7	1134.8	3				IIIG
			DURN	1238.5	1238.5	3	1238.1	1238.9	3				IIIGS/V
21	0718	1520	DURN				0718 E	1430	1				I
			DURN	1036.2	1037.9	3	1036.2	1037.9	3				IIIGG
			DURN				1355.3	1355.7	3				IIIG
22	0721	1520	DURN				0721 E	1230	1				I,DC
23	0720	1520	DURN				0810	1320	1				I
			DURN				1337.6	1338.2	3				IIIG
			DURN				1349.8	1350.6	3				IIIGG
24	0723	1520	DURN										
26	0957	1520	DURN				1058.6	1058.8	2				IIIG
27	0723	1520	DURN				1049.5	1049.5	3				III
28	0723	1520	DURN				1220	1310	1				I,DC
29	0723	1520	DURN										
30	0723	1520	DURN	0842.5	0844.1	3	0842.8	0844.2	3				IIIGG
			DURN				0850.9	0851.0	1				III
31	0723	1515	DURN										

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

(Neutron Monitors)

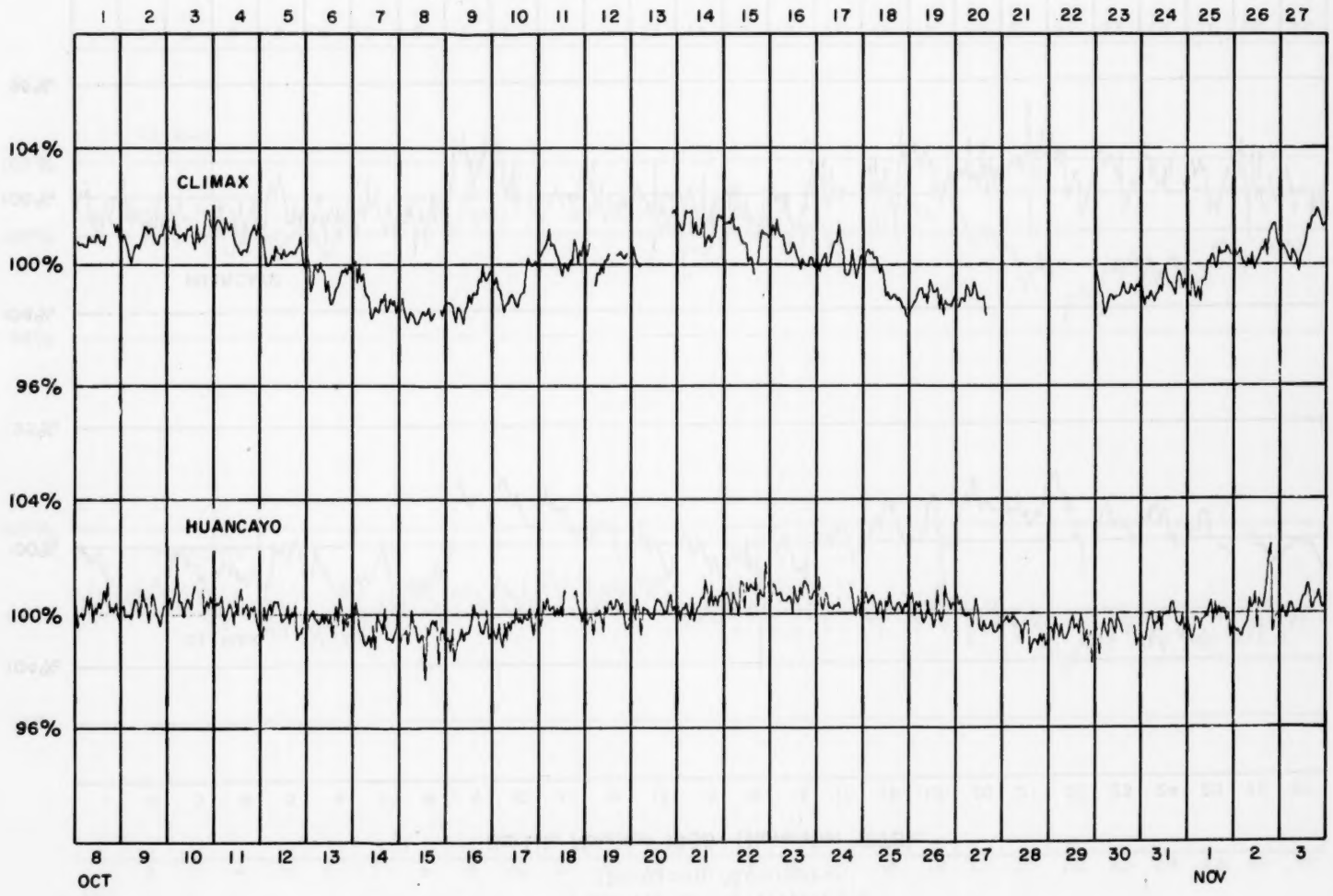
OCT NOV DEC 1978

Oct. 1978	CLIMAX Average cts/hr	HUANCAYO Average cts/hr	Nov. 1978	CLIMAX Average cts/hr	HUANCAYO Average cts/hr	Dec. 1978	CLIMAX Average cts/hr	HUANCAYO Average cts/hr
1	3991.9	1724.5	1	4085.8	1744.1	1	4183.9	1757.3
2	4034.7	1734.3	2	4117.9	1750.2	2	4186.2	1760.8
3	4075.1	1743.2(38)	3	4137.1	1753.8	3	4184.9	1757.8
4	4100.8	1742.3	4	4167.9(40)	1757.0	4	4138.0	1749.0(04)
5	4065.3	1740.2	5	4208.0(02)	1761.6	5	4130.5	1744.0
6	4074.8	1745.5	6	4182.1	1763.4	6	4120.7(38)	1739.0
7	4106.2	1750.9	7	4194.7	1763.8	7	---	1749.9
8	4137.5	1753.2	8	4173.3	1757.2	8	4182.1	1758.9
9	4137.5	1752.4	9	4204.5	1762.4	9	4171.5	1754.2
10	4151.4	1759.2	10	4200.9	1761.3	10	4185.9	1759.4
11	4145.2	1752.2	11	4212.4	1764.9	11	4183.6	1767.3(38)
12	4113.9	1746.5	12	4076.1(38)	1734.3	12	4174.4	1761.2
13	4072.2	1745.0	13	4059.2	1737.2	13	4188.2	1764.8
14	4039.9	1736.9	14	4085.0	1747.7	14	4118.6	1748.4
15	4009.1	1733.9	15	4127.2	1754.2	15	4139.7	1754.1
16	4038.0	1735.5	16	4150.0	1758.0	16	4134.9	1758.6
17	4056.5	1741.0	17	4160.5	1758.3	17	4133.8	1752.3(38)
18	4111.8	1752.8	18	4178.6	1759.7	18	4185.3	1748.3(34)
19	4102.2(38)	1748.1	19	4168.9	1757.2	19	4186.0	1752.9
20	4126.6(18)	1750.6	20	4135.3	1749.1	20	4137.1	1743.4
21	4159.6	1756.1	21	4109.5	1743.7	21	4076.4	1741.0
22	4138.1	1763.5	22	4122.2	1739.6	22	4010.1	1722.4
23	4119.7	1762.2	23	4071.0	1739.7	23	4058.9	1735.1
24	4105.2	1756.5	24	4080.0	1735.8	24	4057.6	1732.3(38)
25	4062.8	1754.9	25	4080.8	1743.6	25	4069.0	1735.3
26	4037.0	1751.8	26	4113.7	1741.2	26	4084.0	1737.8
27	4040.0(30)	1744.2	27	4114.5	1740.9	27	4124.7	1744.2(38)
28	---	1735.3	28	4134.2	1745.7	28	4143.7	1747.1(34)
29	4102.5(04)	1734.9	29	4153.3	1747.7	29	4112.4	1737.6
30	4047.0	1735.5(38)	30	4161.7	1752.0	30	4050.2	1720.8
31	4055.1	1742.6				31	3985.9(38)	1713.7
MEAN	4084.6	1746.0		4137.1	1750.9		4128.7	1746.6

( ) Number of section hours of sum of both sections is less than 40 hours.
Scaling factor at Climax and Huancayo = 100.

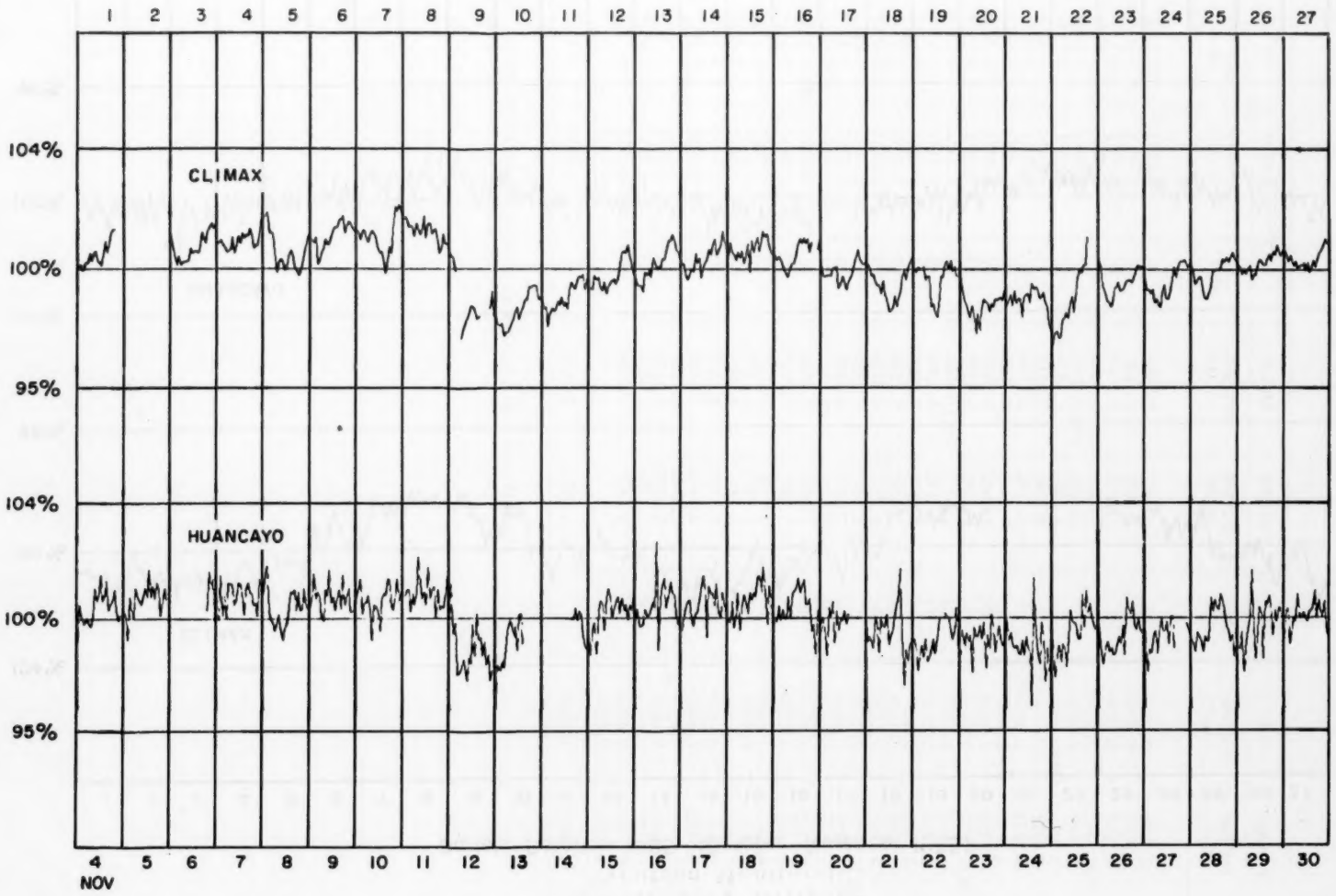
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1985 (October - November 1978)



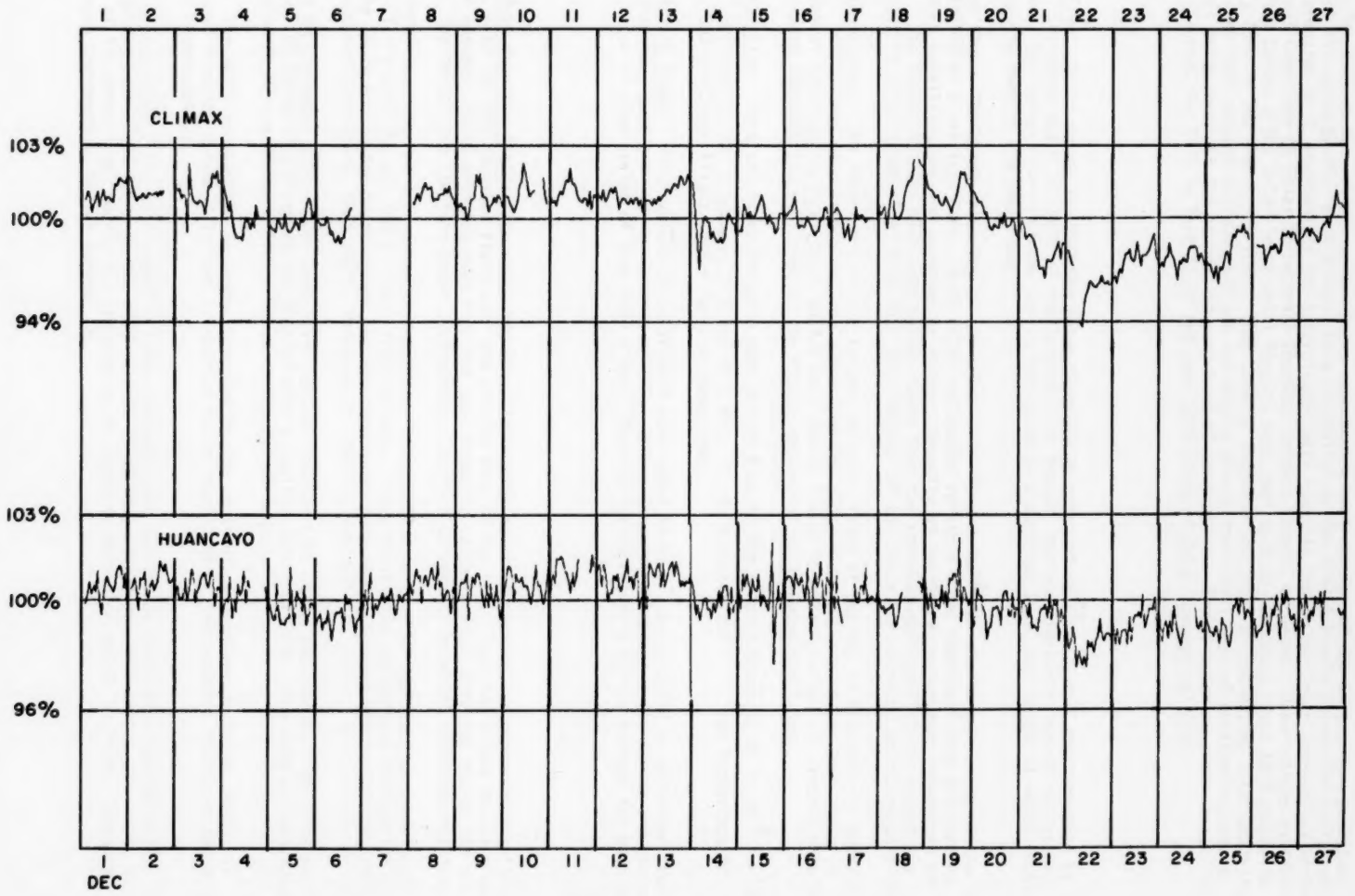
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1986 (November 1978)



COSMIC RAY INDICES
(Neutron Monitors)

Bartel Rotation 1987 (December 1978)



Solar-Terrestrial Activity 1977

The charts for 1977 on the following four pages represent a continuation of the 1976 graphs published in SGD 414 Part II, pages 62-65. Each diagram here is similar to the STAC-A Yearly Charts for 1967, 1968 and 1969, prepared by T. Obayashi of the Interdisciplinary Analysis Center for Solar-Terrestrial Activity, National Committee on Solar-Terrestrial Physics, Science Council of Japan. Observations available in World Data Center A for Solar-Terrestrial Physics have been used to construct these 1977 graphs in half yearly form on two charts per year. They clearly indicate the trend of increasing solar activity since the June 1976 sunspot minimum, and one can easily select individual days of outstanding events. The comments below describe the sources of each kind of observation. The Data Center plans to publish completed diagrams for 1978 in Part II of the June 1979 issue of Solar-Geophysical Data.

Graph 1

2800 MHz Flux: Daily values of 2800 MHz solar flux (S) in units of 10^{-22} Wm^{-2} Hz^{-1} are furnished by A. E. Covington and M. B. Bell of the Astrophysics Branch, National Research Council of Canada, Ottawa. The largest burst of the day is indicated by a vertical line, the length of which equals the square root of the peak flux.

1-8 Å X-Ray Flux: The burst intensity of the solar x-ray flux in Wm^{-2} for the largest event of the day is plotted as a vertical line. Both solid and dashed verticle lines represent data acquired by the GOES satellites and are provided by Richard Donnelly of the Space Environment Laboratory of NOAA. The dashed entries highlight values taken from the somewhat more preliminary report and forecast of solar-geophysical data that Gary Heckman of the Space Environment Laboratory publishes.

Hα Flare Importance: The importance of the largest Hα solar flare of the day is plotted as a vertical line. Solid lines denote observations taken from the group flare reports in the Comprehensive section of Solar-Geophysical Data; dashed bars denote flares based on preliminary records received on a rapid schedule and published in the Prompt section of Solar-Geophysical Data.

IMP 8 Proton Flux: Vertical lines indicate peak proton flux to the nearest power of 10 in cm^{-2} sr^{-1} s^{-1} MeV^{-1} observed by IMP 8 between 19.8 and 40.1 MeV. F. B. McDonald and T. T. van Rosenvinge of NASA, Goddard Space Flight Center furnish these data.

Solar Wind Bulk Speed: Daily values of solar wind bulk speed in km s^{-1} are plotted as estimated from the graphical data provided by Lazarus of MIT. Values shown here emphasize the minima and maxima that occur on time scales of less than a day. They do not represent a strict average for each day.

Graph 2

Stanford Mean Magnetic Field: The solar magnetic field daily means in microteslas represent a weighted average of the net magnetic field over the visible disk of the sun. Positive values denote a mean solar magnetic field pointing away from the sun; negative values a field directed toward the sun. P. H. Sherrer of the Stanford Solar Observatory, Stanford University provides these observations.

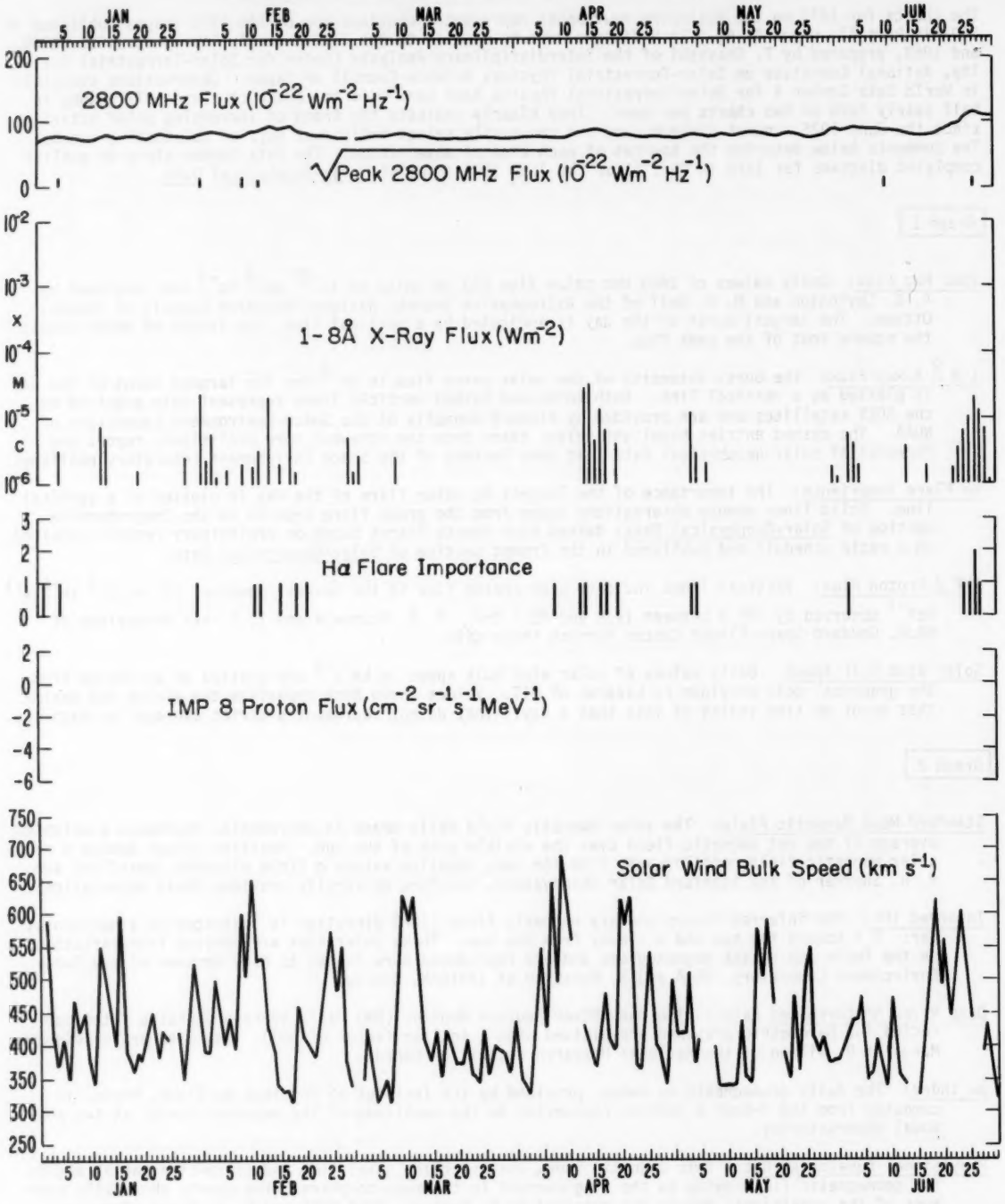
Inferred IMF: The inferred interplanetary magnetic field (IMF) direction is indicated as a horizontal bar: T = toward the sun and A = away from the sun. These polarities are derived from variations on the Thule and Vostok magnetograms and are reproduced here thanks to Gary Heckman of the Space Environment Laboratory, NOAA and S. Mansurov of IZMIRAN, Moscow.

Deep River NM Corrected Rates: The Deep River Neutron Monitor (NM) daily average counting rates corrected for barometric pressure are plotted with a scaling factor of 3000. The data are provided by Margaret D. Wilson of the National Research Council of Canada.

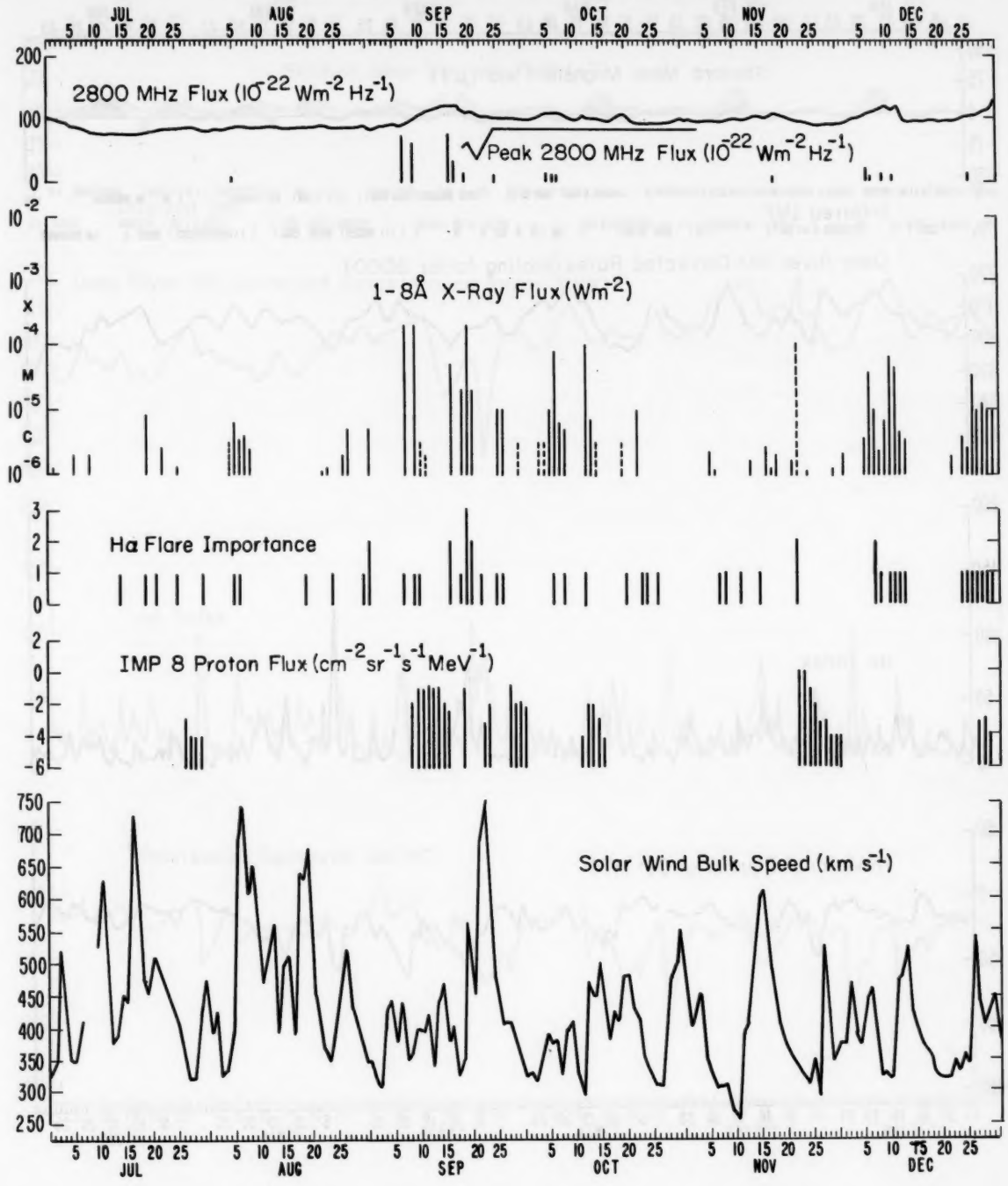
aa Index: The daily geomagnetic *aa* index, provided by the Institut de Physique du Globe, Paris, is computed from the 3-hour K indices (converted to the amplitude of the magnetic field) at two antipodal observatories.

Provisional Equatorial Dst: This magnetic index characterizes quiet-time and storm-time variations in the geomagnetic field owing to the ring current in the magnetosphere. The charts show daily averages of the provisional hourly Dst prepared by M. Sugiura, NASA GSFC and D. J. Poros, Computer Sciences Corporation, Silver Spring, MD.

SOLAR-TERRESTRIAL ACTIVITY CHART 1977

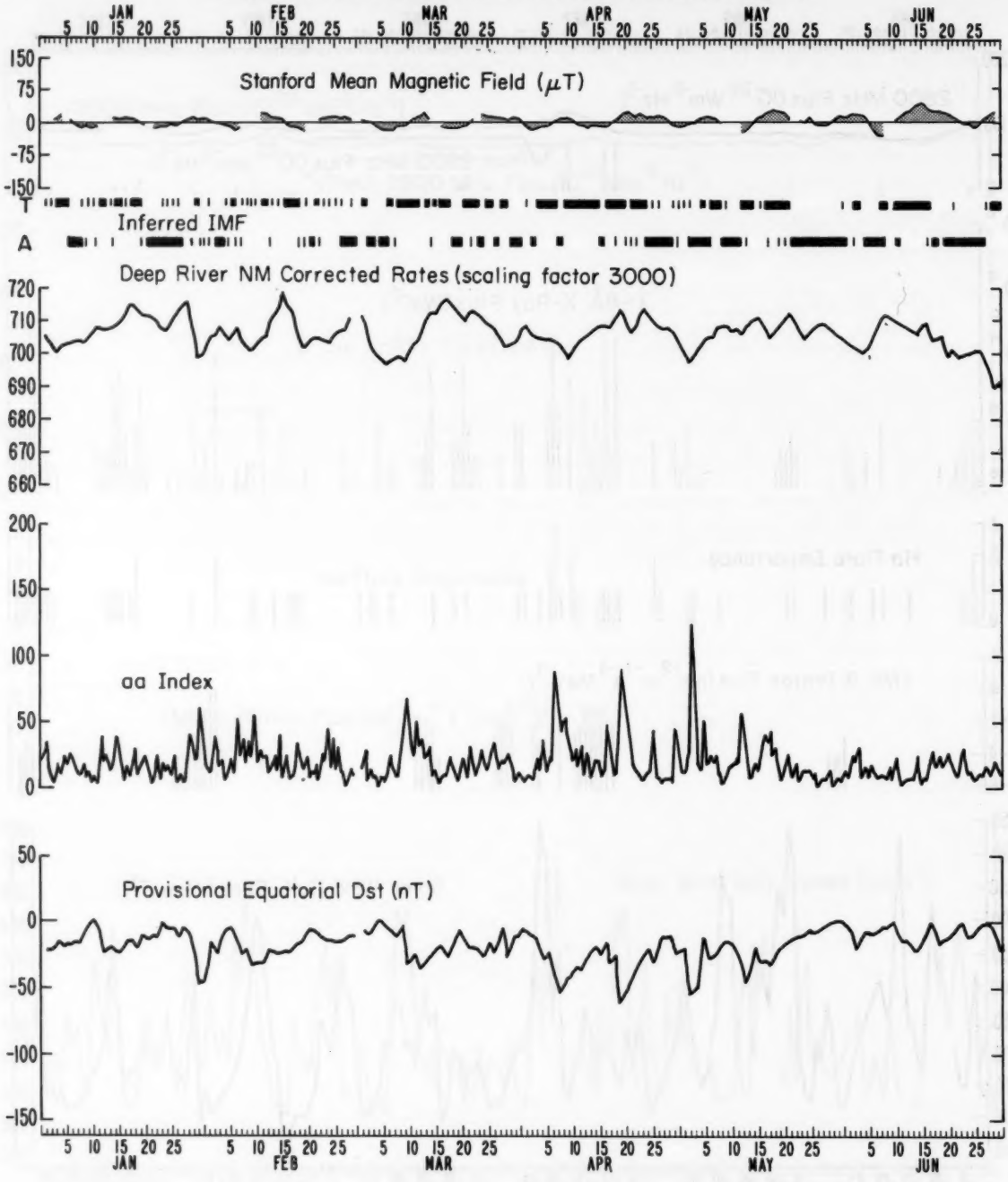


SOLAR-TERRESTRIAL ACTIVITY CHART 1977

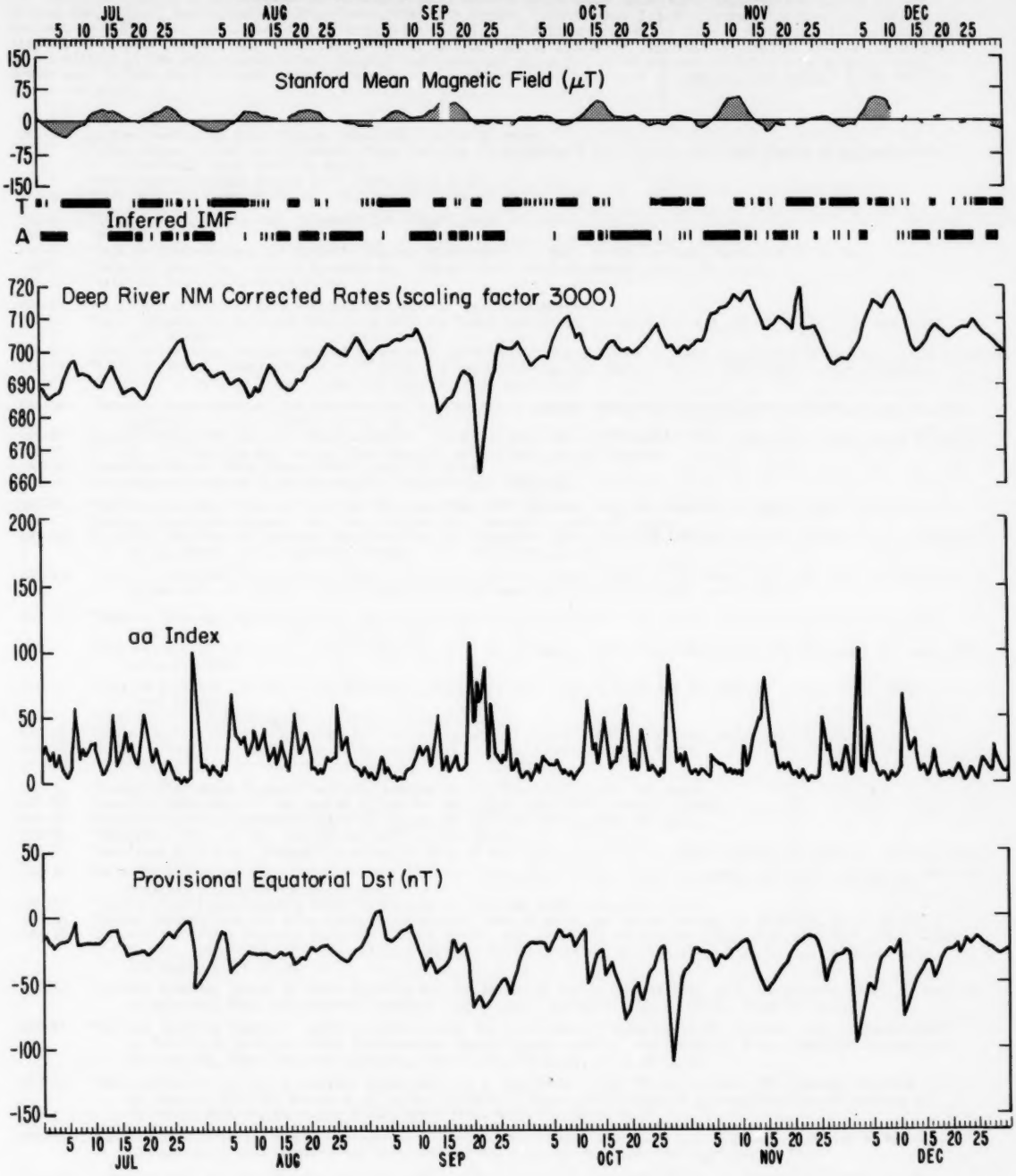


80
Misc
1977

SOLAR-TERRESTRIAL ACTIVITY CHART 1977



SOLAR-TERRESTRIAL ACTIVITY CHART 1977



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UAG-56 "Iso-intensity Contours of Ground Magnetic H Perturbations for the December 16-18, 1971 Geomagnetic Storm", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701 (currently Guest worker at Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302), April 1976, 37 pages, price $1.39.

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UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price $2.16.

UAG-60 "Geomagnetic Data for January 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, July 1977, 57 pages, price $1.07.

UAG-61 "Collected Data Reports for STIP Interval II 20 March - 5 May 1976", edited by Helen E. Coffey and John A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, August 1977, 313 pages, price $2.95.

UAG-62 "Geomagnetic Data For February 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 55 pages, price $1.11.

UAG-63 "Geomagnetic Data for March 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 57 pages, price $1.11.

UAG-64 "Geomagnetic Data for April 1976 (AE(8) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, February 1978, 55 pages, price $1.00.

UAG-65 "The Information Explosion and Its Consequences for Data Acquisition, Documentation, and Processing" by G. K. Hartmann, Max-Planck-Institut für Aeronomie, D-3411 Katlenburg-Lindau 3, GFR, May 1978, 36 pages, price 75 cents.

UAG-66 "Synoptic Radio Maps of the Sun at 3.3mm 1970-1973" by Earle B. Mayfield, Space Science Lab., and Fred I. Shimabukuro Electronics Res. Lab., The Ivan A. Getting Laboratories, The Aerospace Corp., El Segundo, California 90245, May 1978, 30 pages, price 75 cents.

UAG-67 "Ionospheric D-Region Profile Data Base, A Collection of Computer-Accessible Experimental Profiles of the D and Lower E Regions", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, August 1978, 30 pages, price 88 cents.

UAG-68 "A Comparative Study of Methods of Electron Density Profile Analysis", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, September 1978, 56 pages, price $1.41.

UAG-69 "Selected Disturbed D-Region Electron Density Profiles. Their relation to the undisturbed D region", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, October 1978, 50 pages, price $1.29.

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